National Cooperative Highway Research Program

NCHRP Synthesis 267

Transportation Development Process

A Synthesis of Highway Practice

Transportation Research Board
National Research Council

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Synthesis of Highway Practice 267

Transportation Development Process

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NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM

Systematic, well-designed research provides the most effective approach to the solution of many problems facing highway administrators and engineers. Often, highway problems are of local interest and can best be studied by highway departments individually or in cooperation with their state universities and others. However, the accelerating growth of highway transportation develops increasingly complex problems of wide interest to highway authorities. These problems are best studied through a coordinated program of cooperative research.

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The program is developed on the basis of research needs identified by chief administrators of the highway and transportation departments and by committees of AASHTO. Each year, specific areas of research needs to be included in the program are proposed to the National Research Council and the Board by the American Association of State Highway and Transportation Officials. Research projects to fulfill these needs are defined by the Board, and qualified research agencies are selected from those that have submitted proposals. Administration and surveillance of research contracts are the responsibilities of the National Research Council and the Transportation Research Board.

The needs for highway research are many, and the National Cooperative Highway Research Program can make significant contributions to the solution of highway transportation problems of mutual concern to many responsible groups. The program, however, is intended to complement rather than to substitute for or duplicate other highway research programs.

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PREFACE

A vast storehouse of information exists on nearly every subject of concern to highway administrators and engineers. Much of this information has resulted from both research and the successful application of solutions to the problems faced by practitioners in their daily work. Because previously there has been no systematic means for compiling such useful information and making it available to the entire community, the American Association of State Highway and Transportation Officials has, through the mechanism of the National Cooperative Highway Research Program, authorized the Transportation Research Board to undertake a continuing project to search out and synthesize useful knowledge from all available sources and to prepare documented reports on current practices in the subject areas of concern.

This synthesis series reports on various practices, making specific recommendations where appropriate but without the detailed directions usually found in handbooks or design manuals. Nonetheless, these documents can serve similar purposes, for each is a compendium of the best knowledge available on those measures found to be the most successful in resolving specific problems. The extent to which these reports are useful will be tempered by the user's knowledge and experience in the particular problem area.

FOREWORD

By Staff
Transportation
Research Board

This synthesis presents information on current practices used by transportation agencies to complete the transportation development process (TDP). This process involves linking the planning, project development, environmental, design, construction, operations, and maintenance aspects of the overall transportation program. The purpose of the TDP is to implement a "seamless" process in which all these elements come together and in which there is continuous public involvement. This report will be of interest to regional and state transportation, planning, and environmental agencies who participate in the TDP and who are involved in both the development and policy aspects of the TDP.

Administrators, engineers, and researchers are continually faced with highway problems on which much information exists, either in the form of reports or in terms of undocumented experience and practice. Unfortunately, this information often is scattered and unevaluated and, as a consequence, in seeking solutions, full information on what has been learned about a problem frequently is not assembled. Costly research findings may go unused, valuable experience may be overlooked, and full consideration may not be given to available practices for solving or alleviating the problem. In an effort to correct this situation, a continuing NCHRP project, carried out by the Transportation Research Board as the research agency, has the objective of reporting on common highway problems and synthesizing available information. The synthesis reports from this endeavor constitute an NCHRP publication series in which various forms of relevant information are assembled into single, concise documents pertaining to specific highway problems or sets of closely related problems.

This report of the Transportation Research Board describes the history of the transportation development process, as well as the federal requirements that must be met under both transportation, and environmental regulations. This process is made more complex by state and local regulations that must be observed in most jurisdictions.

Throughout this process, as carried out by the state transportation agencies and the metropolitan planning organizations, there is continuous public involvement. Other programs, such as the transportation implementation plan, state transportation implementation plan, and environmental programs such as the National Environmental Policy Act, the Clean Air Act Amendments of 1990, and requirements of other environmental laws must be integrated into the TDP. The complexities of this process are described, and some unique approaches to meeting its demands are presented.

To develop this synthesis in a comprehensive manner and to ensure inclusion of significant knowledge, the Board analyzed available information assembled from numerous sources, including a large number of state highway and transportation departments. A topic panel of experts in the subject area was established to guide the research in organizing and evaluating the collected data, and to review the final synthesis report.

This synthesis is an immediately useful document that records the practices that were acceptable within the limitations of the knowledge available at the time of its preparation. As the processes of advancement continue, new knowledge can be expected to be added to that now at hand.

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ACKNOWLEDGMENTS

Robert P. Mickelson of Phoenix, Arizona collected the data and prepared this report. His work was guided by the assistance of the Topic Panel, consisting of Jon A. Bloom, ISTEA Coordinator, Minnesota Department of Transportation; Andrew Cotugno, Planning Director, METRO, Portland, Oregon; Leland W. Dong, Project Development Specialist, Federal Highway Administration; Louis Ege, Deputy Director, Office of Planning and Preliminary Engineering, Maryland Department of Transportation; C. Leroy Irwin, Manager, Environmental Management Office, Florida Department of Transportation; Lawrence Pesesky, Assistant Director, Transportation Studies, Louis Berger & Associates, Inc.; James A. Scott, Transportation Planner, Transportation Research Board; Kumares Sinha, Professor of Civil Engineering, Purdue University; Brian J. Smith, Program Manager, Environmental Program, California Department of Transportation; and Barbara H. Stevens, Socio-Economic Specialist, Bureau of Design & Environment, Illinois Department of Transportation.

This study was managed by Sally D. Liff, Senior Program Officer, who worked with the consultant, the Topic Panel, and the Project 20-5 Committee in the development and review of the report. Assistance in Topic Panel selection and project scope development was provided by Stephen F. Maher, P.E., Senior Program Officer. Linda S. Mason was responsible for editing and production.

Crawford F. Jencks, Manager, National Cooperative Highway Research Program, assisted the NCHRP 20-5 staff and the Topic Panel.

Information on current practice was provided by many highway and transportation agencies. Their cooperation and assistance are appreciated.

TRANSPORTATION DEVELOPMENT PROCESS

SUMMARY

With the advent of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) and related changes in other legislation such as the Clean Air Act, the transportation development process (TDP) has undergone corresponding changes in recent years. The process is complex, requires extensive resources, and, because of local requirements and conditions, it is not uniform throughout the United States. The process requires adequate recognition of increasingly sensitive and important social, economic, environmental, and public policy issues. There is a need to identify appropriate procedures and approaches that can minimize redundant analyses in the TDP.

The transportation development process may be described as the series of activities related to the planning, construction, and operation of transportation facilities. These include planning, project development, environmental mitigation, right-of-way acquisition, and design, as well as ongoing public involvement as the principal components of the federal transportation development process. This process, which formally started in the 1960s with the "3C" (continuous, comprehensive, and cooperative) planning process for metropolitan areas was augmented in the late 1960s and early 1970s with the passage of the National Environmental Policy Act (NEPA) and the Clean Air Act, as well as other legislation related to the preservation of historic resources, and the natural environment and human environments. ISTEA has influenced program and funding changes and has effected modifications to the requirements placed on the TDP. Even as new legislation for the funding of transportation facilities is considered in 1998, most of these elements contained in the 1991 act would be retained, or included in a modified form.

The TDP begins with the transportation planning process, which is divided into metropolitan and statewide processes. Each is required to have long-range plans and short-term transportation improvement programs, which are expected to be coordinated. Public involvement is essential to the TDP, and includes important requirements, such as notifying agencies and the public at large of the proposed program, the funding, holding public meetings, affording the public the opportunity to examine and comment on the proposed program, providing for a public hearing, and including public comments in the final program. A major investment study (MIS) is often required as part of the TDP. The NEPA process is the basic mechanism for documenting environmental effects of transportation projects. Management systems for bridges, safety, pavement, congestion, etc., are now optional, but are frequently included. Section 4(f) preservation requirements, design and specifications standards, and the Uniform Relocation Assistance Act are included in the range of federal requirements affecting the TDP.

There are many other significant requirements that must be considered in developing transportation investments. These include the Clean Air Act, Clean Water Act, Resource Conservation and Recovery Act, Natural Historic Preservation Act, Threatened and Endangered Species Act, Civil Rights Act, etc. Each of these programs has its own requirements, which add to the complexity of the TDP and call for greater coordination.

Coordination and decisionmaking are essential throughout the TDP. In addition to the federal transportation law and NEPA requirements for TDP coordination and decisionmaking, many resource agencies outside transportation also invoke their coordination and decisionmaking requirements, primarily through permitting and licensing. In addition, many public and advocacy groups can have an influence on decisionmaking.

For this synthesis, a survey of six major topical areas was sent to all states and 10 MPOs; 27 states and three MPOs responded. The respondents appear to be satisfied with some aspects of the TDP, but expressed concerns with others. Eight states provided case studies on successful approaches that they have experienced with the TDP. These selected examples addressed the subjects of planning, programming, management systems, public participation, alternatives development and environmental documentation, integration of NEPA and environmental laws into a unified process, and project management. They demonstrate innovation and dedication to making the TDP work, as well as the challenges associated with the complexity of individual elements of the process. The case study states were Oklahoma, Washington, New York, Kentucky, New Hampshire, Minnesota, Florida, and Arizona. Some highlights from these examples are:

- Oklahoma uses a predesign scoping process that recognizes environmental issues early in the project development and establishes a project scope that results in few changes during design.
- Washington State DOT employs a Transportation Policy Plan that is updated annually. It is developed with the aid of committees and public participation. A Statewide Multimodal Transportation Plan with a 20-year planning horizon is also developed and updated biennially.
- New York State DOT uses a goal-oriented plan that includes performance measures to develop its 5-year state transportation plan. NYSDOT uses an integrated policy and management direction for administrative, functional, and technical elements.
- The public involvement process in Kentucky is evolving from a "grass roots" process that establishes regional committees that meet on a scheduled basis to review and refine the statewide planning process.
- New Hampshire has found success when one federal agency takes the responsibility for Clean Water Act permitting and that all federal agencies participating in the process must be committed to full and impartial involvement, and be willing to sign off at key decision points.
- Minnesota DOT has published a guidance manual for the development of the State Transportation Improvement Program (STIP). The process has been successful in identifying seven goals that include an integrated public involvement program and the development of area transportation partnerships among several counties.
- Florida DOT has developed a Project Development and Environment Manual as the accepted standard to conduct project development activities in the state. This manual is updated annually and distributed widely within and outside the state.
- A system for managing all state highway projects has been developed by Arizona DOT, using a multifunctional team to review the process, determine the problems associated with managing the process, and develop procedures for alleviating the problems. ADOT has developed a Project Development Process Manual and a Project Manager's Manual and training programs to implement the process. This has improved the ability to meet scope and budget management objectives.

Several conclusions were drawn from the study:

- The transportation development process must be understood as a continuous and seamless process beginning with planning and carrying through design to project implementation.
- There is improved coordination and strengthening of state and regional planning, programming, and public participation processes.
- Project development activities are being advanced to the planning phase, but not always successfully.
- Methods, tools, and techniques for working with the TDP need to be shared among transportation agencies.
- The TDP is very complex, and all responding states are having problems with some of its requirements.
- The many environmental and related programs that impact the transportation decisionmaking process can result in redundancy and inefficiency.
- There needs to be better participation by federal agencies, including resource agencies, in the transportation development process.
- There needs to be stronger coordination and accountability for decisionmaking among federal agencies.

This synthesis can provide a source of information for transportation agencies to understand the issues associated with the transportation development process and how some agencies are handling these issues. The synthesis can also serve as a discussion document for future policy development.

CHAPTER ONE

INTRODUCTION

PROBLEM DEFINITION AND SYNTHESIS OBJECTIVE

The transportation development process (TDP) has gone through significant changes in recent years as a result of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA). The process, which is not uniform because of other federal and state regulations, is often believed to cause project delays, high project costs, and loss of public confidence and credibility. The process requires adequate recognition of increasingly sensitive and important social, economic, environmental, and public policy issues. There is a need to identify appropriate procedures and approaches that can minimize redundant analyses in the transportation development process.

The objective of this synthesis is to examine processes that are currently followed by various states, particularly in light of ISTEA requirements, with emphasis on:

- Coordination among different agencies to integrate environmental concerns throughout all phases of development,
- Effects of ISTEA and future authorization requirements,
- Effects of other federal requirements, such as the Clean Water Act, Clean Air Act Amendments, and the Civil Rights Act,
- Sequence of activities in the TDP,
- Relationship between statewide and regional transportation planning,
- Successful institutional relationships, and
- Problems encountered with the TDP.

The process associated with highway and transit decisions is the focus of this synthesis. It does not attempt to deal with aviation or railroad transportation development processes, nor does it address freight or personal travel as separate process issues.

DEFINITION AND DESCRIPTION OF THE TRANSPORTATION DEVELOPMENT PROCESS

For purposes of this synthesis, the transportation development process consists of a number of interrelated activities, which include planning, project development, project mitigation, right-of-way acquisition, and design, within the framework of continuous public involvement and a seamless decisionmaking process. Although construction, maintenance, and operation of the transportation project could be considered part of the TDP, they have not been included here. Figure 1 depicts the major elements of the TDP and their relationships from the federal environmental perspective (*1*). This process is not uniform for many reasons. Additional detail on the planning portion of the TDP is presented in chapter 2.

The TDP is not a standard process. While there are many common elements, the process varies throughout the United States because of different local laws and conditions. This synthesis attempts to address important issues of common elements of the process.

HISTORY OF THE TRANSPORTATION DEVELOPMENT PROCESS

There has been a TDP for a long as there have been transportation projects. However, today's process has its roots in the Federal-Aid Highway Act of 1962, which established the continuous, comprehensive, and cooperative (3C) planning process for metropolitan areas. This was the first formal recognition that the consequences of transportation decisions must be considered. The 3C process placed additional importance on public involvement, which originated with the public hearing requirement in the Federal-Aid Highway Act of 1950.

The 1960s was a decade of environmental awareness, which resulted in new federal environmental emphasis in the transportation development process. The Historic Preservation Act of 1966 required consideration of historic resources in transportation decisionmaking. The Department of Transportation Act of 1966 established the 4(f) requirement for the protection of publicly owned parks, recreational areas, or wildlife and waterfowl refuges or any significant historic site. The National Environmental Policy Act (NEPA) was passed in 1969 and resulted in landmark impacts on transportation development. The Urban Mass Transportation Administration (UMTA) was established in 1964, resulting in a new focus on considering alternatives to the automobile in urban transportation decisionmaking.

The emphasis on environmental considerations in the transportation development process continued in the 1970s. The Clean Air Act (CAA) of 1970, the Endangered Species Act of 1973, the Resource Conservation and Recovery Act (RCRA) of 1976, the Clean Water Act of 1972 and many other laws (*2*) were directed at specific environmental issues, but required attention in the transportation development process because of the impacts transportation has on these issues. The funding made available to transportation was seen by many as a way to finance solutions to environmental problems. The Middle East energy crisis of 1973 led to energy conservation as a major factor in the TDP. The Uniform Relocation Assistance and Real Property Acquisition Act of 1970 established significant property acquisition requirements for the protection of owners whose property would be taken for transportation projects. Office of Management and Budget

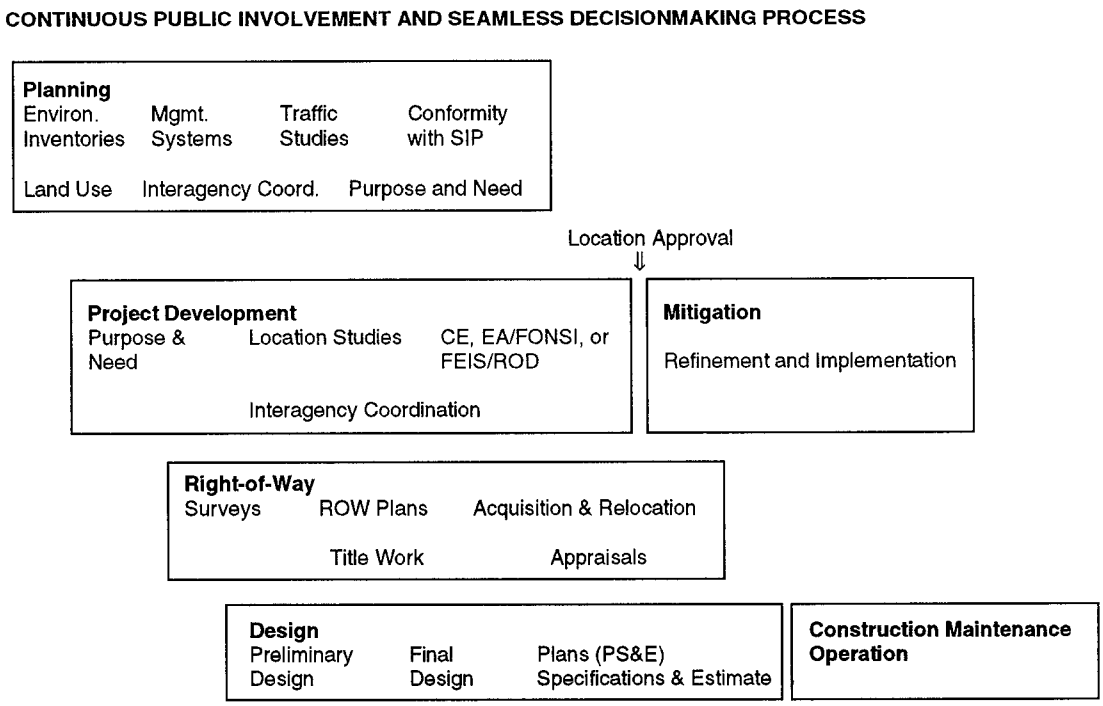

FIGURE 1 Transportation development process *(1)*.

Circular A-95 required improved communication and coordination among agencies about proposed projects. A requirement was established for Transportation System Management (TSM) strategies to be considered as alternatives to construction of new transportation facilities in metropolitan areas.

The 1980s brought new financial commitment to transportation, with substantial increases in funding at the federal, state, and local levels. Much of the new funding went to the metropolitan areas to support needed urban transportation improvements that had been delayed from previous decades because of cost, complexity, or environmental issues. This included completing many of the metropolitan connections to the Interstate System, as well as building new major non-Interstate metropolitan highway facilities. The new focus on urban transportation resulted in the continued strengthening of the roles of metropolitan planning organizations (MPOs) and local agencies in the transportation development process. Emphasis on the environment continued, and many environmental concerns were addressed with the increased funding.

The 1990s have again seen heightened emphasis on environmental issues, such as air and water quality, in the transportation development process. The Americans with Disabilities Act and the Presidential Executive Order for Environmental Justice focus attention on human issues. The most significant changes to the transportation development process have come from the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) (PL102-240).

Many state and local governments have instituted more stringent legislative requirements on the TDP than those at the federal level. These requirements may be directed specifically at transportation or may be aimed primarily at other issues such as protection of the environment, conservation of resources, or growth management.

INFLUENCE OF ISTEA ON THE TRANSPORTATION DEVELOPMENT PROCESS

ISTEA provides for landmark changes to the TDP that are discussed in subsequent sections of this synthesis. ISTEA provided major changes in how surface transportation is funded. Of particular note are the National Highway System (NHS) Program, Surface Transportation Program (STP), and several environmentally oriented special programs, including transportation enhancements, Scenic Byways, and Congestion Mitigation and Air Quality Improvement (CMAQ). ISTEA, together with the NHS Designation Act of 1995, established a 159,000 mile National Highway System (NHS). ISTEA expands greatly the types of projects that are eligible for funding under the basic programs, extending the range of project alternatives that may be considered. For example, transit capital improvements and operations for new starts are eligible for funding under the CMAQ, STP, and NHS programs.

ISTEA modified planning, programming, coordination, and public involvement requirements for both states and MPOs. It added new studies and management system requirements for transportation programs and reduced the federal role in areas such as project approvals. ISTEA strengthens the requirements for the TDP to address environmental issues. The Act provides for more flexibility and innovation in transportation decisionmaking, but at the same time considerably complicates the TDP, as discussed in this synthesis.

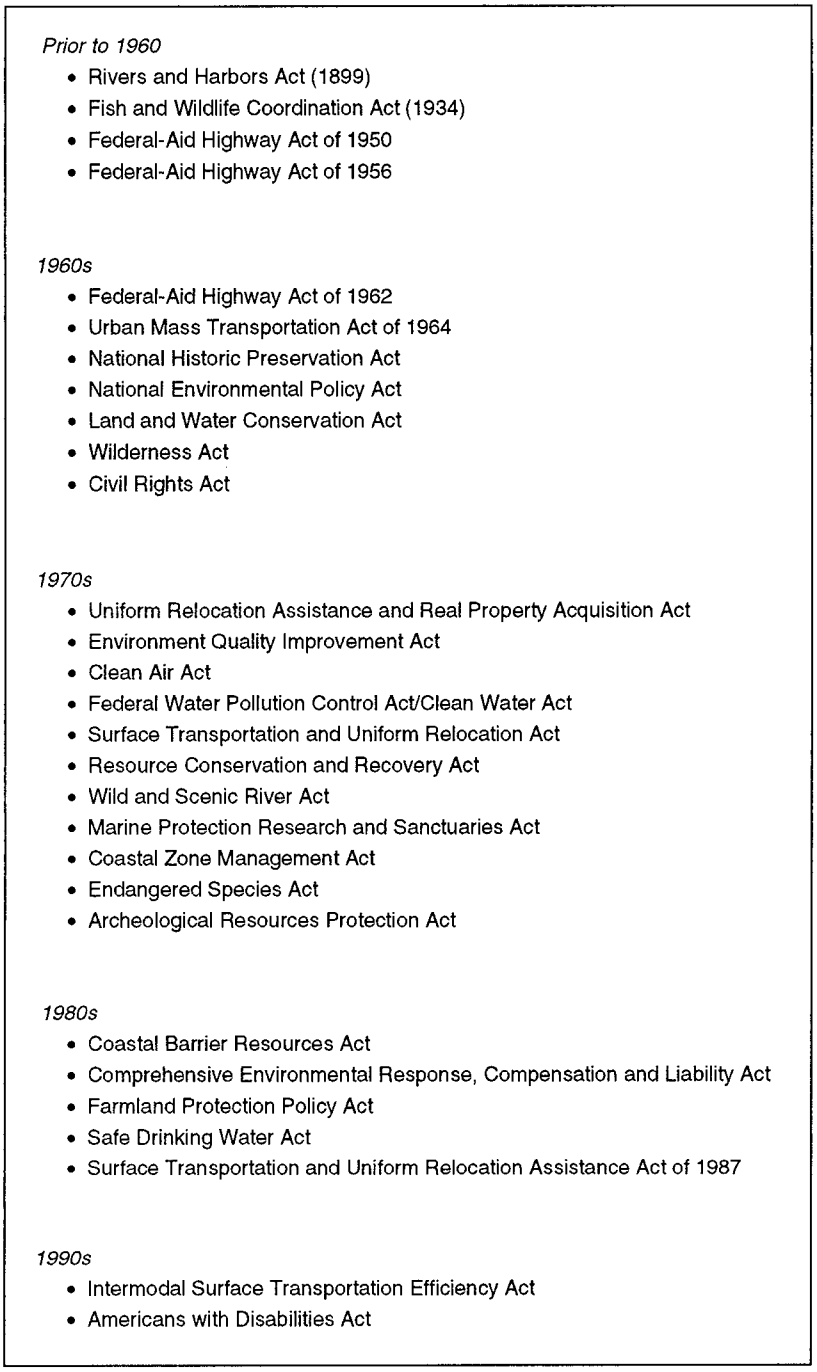

FIGURE 2 Enactment period of some federal laws (many amended) that can influence the TDP.

INFLUENCE OF RELATED FEDERAL PROGRAMS ON THE TRANSPORTATION DEVELOPMENT PROCESS

Related federal programs influence the TDP substantially. The breadth of these impacts is nowhere more evident than in the metropolitan and statewide planning factors listed in Title 23, U.S.C. that are required to be considered in the TDP. These factors include, among others: consistency with energy conservation programs; consistency with land use and development plans; international and national facilities; overall social, economic, energy, and environmental effects; coordination with Clean Air Act agencies; consideration of plans developed under the Federal Water Pollution Control Act; and the concerns of Indian tribal governments (23 U.S.C. 134, 135) The impacts of the planning factors for metropolitan areas are discussed in NCHRP Synthesis 217 (*3*).

Agencies administering other federal programs require the TDP to consider their interests through specific federal transportation requirements, through general laws like NEPA applicable to transportation, or through their own program

enabling legislation and regulations. Federal land agencies, such as the Bureau of Land Management and the United States Forest Service; permitting agencies, such as the United States Army Corps of Engineers (COE); and sanctioning agencies, like the Environmental Protection Agency (EPA) have particularly strong influence over the TDP because projects cannot move ahead without their approval or completion of their permitting process. The "AASHTO Survey on Mandates Impacting Federal Surface Transportation Programs" cited Clean Air Act compliance and air quality nonconformity as the two mandates from which the states cited relief of penalties most important (*4*). A list of some of the important federal laws influencing the TDP is provided in Figure 2 (*2,5*).

INFLUENCE OF ADVOCACY GROUPS ON THE TRANSPORTATION DEVELOPMENT PROCESS

Advocacy groups, such as the Sierra Club, Environmental Defense Fund, the Center for Law in the Public Interest, the Surface Transportation Policy Project, and the American Association of State Highway and Transportation Officials (AASHTO) influence the TDP through the legislative and rule-making processes as well as at the public agency planning, programming, and project development process levels. The effect of advocacy groups' involvement in legislation and rule-making takes various forms: establishment of standards, such as clean air; establishment of programs, such as STP and transportation enhancement; and establishment of processes, such as planning, programming, public involvement, and NEPA.

Once legislative and regulatory requirements are established, advocacy groups have a secondary effect in assuring that public agencies adhere to the requirements in their TDPs. This will increase the time and cost to complete the TDP for agencies not following established TDP requirements, especially on controversial projects. The effects of advocacy groups may be viewed as cumulative through influencing the establishment of new TDP requirements and assuring that the new requirements are implemented.

CHAPTER TWO

FEDERAL TRANSPORTATION DEVELOPMENT PROCESS REQUIREMENTS

There are several requirements set forth in federal statutes and regulations that significantly affect the conduct of the TDP. Many of these requirements, briefly introduced in the following section, stem directly from ISTEA. No attempt is made here to discuss individual state TDP requirements, which in many cases provide a substantial supplement or framework to the federal requirements, and in some cases, differ from the federal process.

TRANSPORTATION PLANNING PROCESS

ISTEA establishes separate requirements for continuous, comprehensive, and coordinated metropolitan and statewide transportation planning. However, they are expected to be coordinated and the metropolitan area transportation improvement programs (TIPs) must be included without modification, after approval by the governor, into the statewide transportation improvement program (STIP). Figure 3 shows the major components and relationships for the transportation planning process (*6,7*).

Metropolitan Planning *(7)*

Metropolitan planning organizations (MPOs), in cooperation with the state, are required to develop transportation plans and programs for metropolitan areas of the state. A public participation program that meets US DOT guidelines is required in preparing plans and programs, which are expected to consider all modes, provide for an intermodal transportation system and follow a 3C process in their development. MPOs are designated by agreement between the governor and the general purpose local governments of the urbanized area. The US DOT is required to certify periodically that MPOs in urbanized areas over 200,000 population are carrying out their responsibilities under federal law and federal funds may be withheld from uncertified MPOs. More than one MPO may be designated for large and complex urbanized areas. For ozone and carbon monoxide nonattainment areas, the boundaries of the MPO are to cover at least the nonattainment area. A minimum of 16 factors are to be considered and analyzed as appropriate in the MPO planning process.

Each MPO is required to develop, cooperatively with the state DOT and transit operators and with appropriate public involvement, at least a 20-year multimodal and intermodal long-range plan that is intended to provide for an integrated transportation system. A financial plan is required to demonstrate that the long-range plan can be implemented. The long-range plan must demonstrate the preservation and efficient use of existing transportation facilities. In nonattainment and air quality maintenance areas, the transportation plan and TIP must show conformity within the purpose of the State Implementation Plan (SIP) required by the Clean Air Act.

Each MPO is also required to develop, with appropriate public participation, a TIP for the area. The TIP must be updated at least every 2 years and must include a priority list of projects for the next 3-year period, along with a financial plan that is realistic for implementing the program. In metropolitan areas with population less than 200,000 selection of federally financed projects for implementation is to be carried out by the state in cooperation with the MPO and in conformance with the TIP. In the long-range planning process, major capital investment projects, such as construction of a new transportation facility or substantial expansion of an existing facility, require major investment studies (MIS) that are consistent with NEPA requirements. Projects included in the TIP must be consistent with the long-range plan.

Urbanized areas with population over 200,000 are designated as transportation management areas (TMAs). In addition to the long-range plan and TIP requirements, each TMA is required to develop a congestion management system that provides for effective management of new and existing transportation facilities through the use of travel demand reduction and operational management strategies in accordance with requirements established by the US DOT. In TMAs, Surface Transportation Program projects are selected by the MPO in consultation with the state. In TMAs classified as nonattainment for ozone or carbon monoxide, federal funds may not be programmed for a highway project that significantly increases the carrying capacity for single-occupant vehicles unless the project is part of the approved congestion management system.

Statewide Planning *(6)*

States are required to develop transportation plans and programs, including long-term plans, for all areas of the state outside the MPOs, which results in an intermodal transportation system. The plan and program development processes are required to have a public participation element. The planning process must consider all modes and be carried out using the 3C process. States are required to coordinate their transportation planning with MPO planning and must prepare the transportation development portion of the SIP in accordance with the requirements of the Clean Air Act (CAA). States must also consider: concerns of Indian tribal governments, rural economic

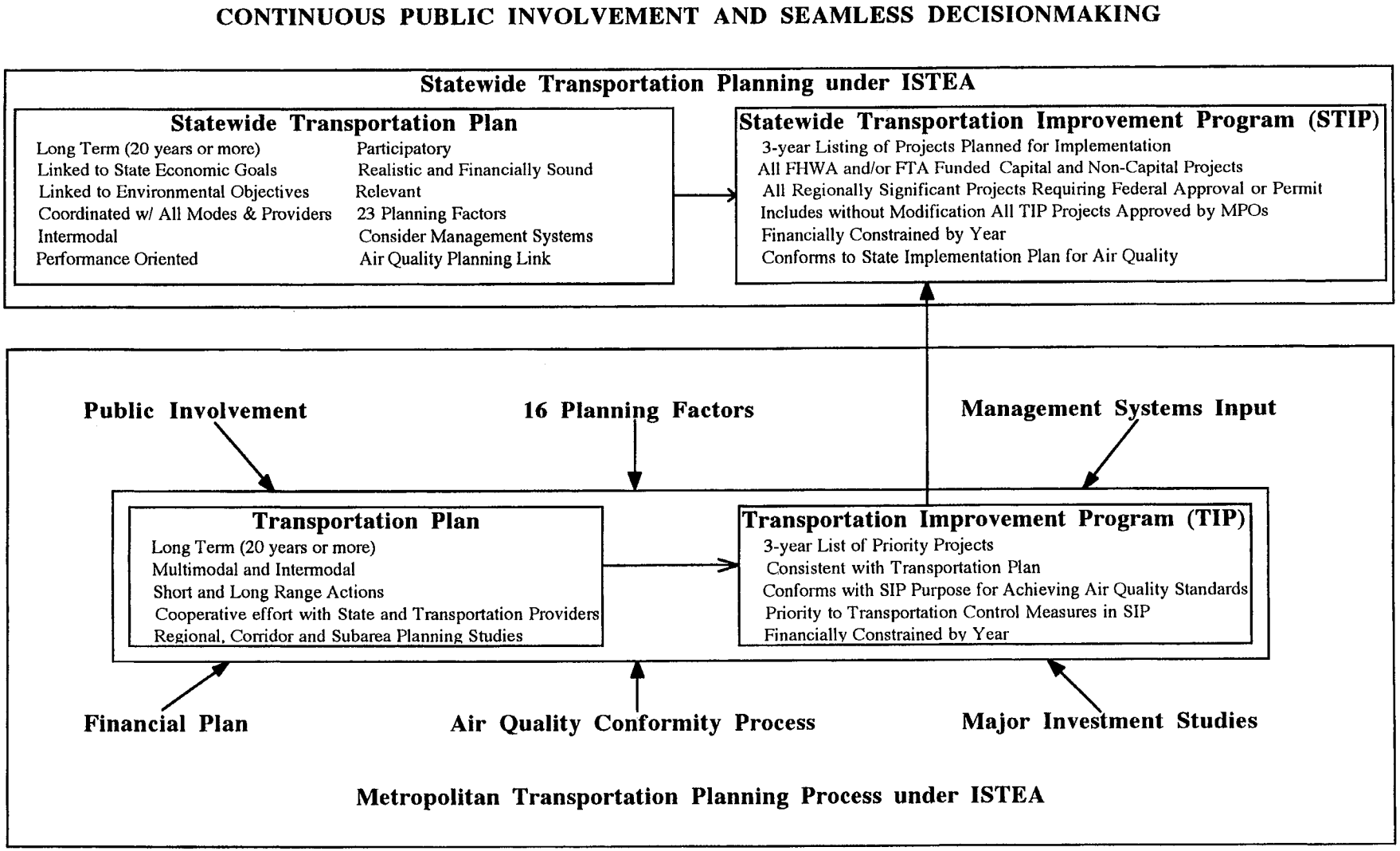

FIGURE 3 Transportation planning process *(1,6,7)*.

growth, tourism, and federal agency programs. At least 23 factors must be considered in states' planning processes.

States are also required to develop statewide transportation improvement programs (STIPs) for all areas within the states. The STIP development process must meet the requirements of the first paragraph of this section. The STIP must be consistent with the long-range plan and incorporate without modification the TIPs developed by the MPOs and approved by the governor. All federally funded highway and transit projects in the state are to be included in the STIP. The STIP shall be financially feasible and reflect programming and expenditure priorities, including enhancements. Projects shall be selected in cooperation or consultation with local officials.

PUBLIC INVOLVEMENT

Public involvement is an integral component of the TDP. Federal requirements provide for input by the public throughout the transportation development decisionmaking process, starting with planning and continuing through programming and the project development process. For certain federal-aid projects, by law, states hold or offer the opportunity for public hearings. The TDP is seen as a seamless decisionmaking process, with public involvement on a continuous basis to assist the decisionmakers. Following are some specific examples of public involvement opportunities.

MPOs and states are required to notify and provide citizens, affected public agencies, representatives of transportation agency employees, private transportation providers, interested parties, and affected segments of the community the opportunity for input on proposed long-range plans and transportation improvement programs (TIPs and STIPs) prior to approval.

Mass transportation block grant recipients have several public involvement requirements to fulfill. These include notifying the public regarding the amounts of money available and the proposed program to be undertaken; developing the program in consultation with interested parties; giving the public the opportunity to examine and comment on the proposed program; offering a public hearing; considering comments received; and making the final program available to the public.

Public involvement requirements are found in ISTEA and many environmental laws—most importantly the National Environmental Policy Act of 1969 (NEPA), but also many other laws such as the Clean Water Act, Clean Air Act and National Historic Preservation Act (*8*). In essence, these laws require public involvement prior to a federal agency taking any major action, such as issuing a permit, granting an easement for use of federal land, or providing project approvals. As a consequence, they tend to focus on location and design issues, rather than planning and programming issues.

Public involvement in federal actions can assist in determining the type and scope of environmental document required and the level of analysis needed. States must have FHWA approved procedures for carrying out their project level public involvement and hearing processes. State transportation agencies must involve other state and federal agencies that are affected by the action. When federal agencies other than US DOT are required to take an action on a transportation project, public involvement processes for those agencies must be followed, as well as the US DOT requirements (23 CFR 771).

A scoping public hearing or the opportunity for a public hearing is required for all Interstate System projects and all other federally funded highway projects bypassing or going through a community. Scoping and a public hearing are required for all projects requiring an environmental impact statement (EIS). Transit capital projects require public hearings and public involvement during the scoping and environmental processes.

MAJOR INVESTMENT STUDIES *(9,7)*

Major investment studies (MIS) are a federal requirement for corridor and subarea level studies prior to making high cost or high impact transportation investment concept decisions in metropolitan planning areas. The MIS process is flexible and is intended to provide transportation professionals, decisionmakers, and the public the opportunity to plan together. In preparing an MIS, reasonable cost alternatives should be looked at in terms of meeting local, state, and national goals. Alternative modes should be considered, and the alternatives should address a variety of factors for system and program planning including:

- Clean air,
- Intermodal planning, congestion management, and financial constraints,
- Social, including environmental justice, economic, and environmental factors,
- Restriction of single-occupancy vehicles in nonattainment areas, and
- Benefits and costs.

Major investment studies are required to be developed through a cooperative process that involves the state DOT, affected MPOs, local transit operators, FHWA, FTA, local officials, and environmental and other resource agencies. Effective public involvement is also expected.

Financially constrained placeholder projects may be included in the long-range plan and TIP until completion of the MIS. The MIS may be documented in a final report for future use in preparing NEPA documents for selected projects, or it may be documented in a draft NEPA document that is subsequently finalized following preliminary engineering. Since the MIS is focused on concept identification, the information may not be detailed enough to be the basis for a final NEPA document. However, the MIS is intended to integrate the planning and environmental processes. The selected concept must be adopted into the long-range plan and TIP before preliminary engineering and the final NEPA document can be prepared.

NEPA PROCESS

Compliance with NEPA is one of the most significant federal requirements. It affects every federally funded project and

every project requiring federal permitting, changes in access control or other significant federal action regardless of funding. The basic requirements under NEPA are established by the United States Council on Environmental Quality in 40 CFR (Code of Federal Regulations) parts 1500 through 1508. These regulations are supplemented for surface transportation projects in 23 CFR part 771.

The US DOT environmental policy requires that, to the extent possible, the environmental process for a project will be a single process; alternative courses of action will be considered; and decisions will be made in the best public interest, considering transportation needs, social, economic, and environmental factors; and local, state, and national goals. Public involvement and a systematic interdisciplinary approach are essential to the process. Mitigation measures will be incorporated into the action, and discrimination must be excluded from the process. Early coordination with appropriate agencies and the public is required as previously discussed and in accordance with federally approved state procedures.

Either an environmental assessment/finding of no significant impact or an environmental impact statement/record of decision will be required for every project that is not categorically excluded as having no significant environmental impact. For projects not categorically excluded, the project sponsor may proceed directly to developing an EIS. If it is not clear whether a project has a significant environmental impact, an environmental assessment may be developed to determine whether an EIS or a finding of no significant impact (FONSI) is appropriate.

Tiering of an EIS may be used for major transportation actions. The first tier addresses broad issues, such as location, mode choice, and air quality and land use implications of alternatives. The second tier addresses site-specific details on project impacts, costs, and mitigation.

Environmental assessments/FONSIs and EIS/records of decision must follow specific requirements prior to approval. Public notice of findings is required prior to final decisions. Local notice of availability and a 30-day comment period is required for an environmental assessment, to which a FONSI is an attachment. For an EIS, Federal Register notice is required. Comments received on a draft EIS must be considered in preparing the final version, which will include the preferred alternative and an evaluation of all alternatives considered and mitigation measures most likely to be provided. Mitigation measures included in the record of decision must be incorporated into the project. Every reasonable effort must be made to resolve interagency disagreements on actions before finalizing an EIS. The document must be submitted to the appropriate FHWA Regional Office for approval. Prior concurrence before approval of any EIS by FHWA Headquarters may be required where opposition is indicated by federal, state, or local agencies on environmental grounds or other major environmental concerns.

OTHER FEDERAL REQUIREMENTS

A number of other specific federal transportation statutory and regulatory requirements substantially influence the TDP. They are not discussed in detail here, but some examples are mentioned.

Management Systems

Every state is encouraged to develop and implement systems for managing highway pavement, bridges, highway safety, traffic congestion, public transportation facilities and equipment, and intermodal transportation facilities and systems. The congestion management system is a requirement for TMAs, although all of the management systems are recommended for incorporation into the TDP (23 USC 303).

Section 4(f) of the US DOT Act of 1966

This law specifies that a special effort must be made to preserve the importance of public park and recreation lands, wildlife and waterfowl refuges, and historic sites. FHWA must make a separate determination regarding the applicability of Section 4(f) to a project. If applicable, Section 4(f) evaluations must be prepared to determine if there are feasible and prudent alternatives to avoid publicly owned parks, recreation areas, or wildlife or waterfowl refuge, or any significant historic site. They may be conducted as part of a FONSI, an environmental assessment, or an EIS. They may also be a separate Section 4(f) evaluation. A programmatic 4(f) evaluation may be used for projects having minor involvement with 4(f) facilities under specific criteria, including agreement by the officials with jurisdiction over the resource (23 CFR 771) (*1*).

Design Standards, Policies, and Standard Specifications for Highways

Consideration must be given to design standards, policies, and specifications in the transportation development process. Achieving design standards often conflicts with other TDP process objectives, such as avoiding environmental impacts. FHWA has established design standards, policies, and standard specifications for federally funded projects. To a large extent, federal standards are based on the work of the American Association of State Highway and Transportation Officials (AASHTO). These requirements address a wide range of subjects, such as geometrics, system preservation, bridges, noise abatement, utilities, and drainage. Deviation from standards may require FHWA approval and may place the facility owner at risk for safety liability. Conversely, the costs and time for implementing design standards and policies may also be substantial.

Uniform Relocation Assistance and Real Properties Acquisition Policies Act

This legislation establishes the requirements when property must be acquired and resident and business occupants displaced for rights-of-way needed for construction on federally

funded highway or transit projects. The legislation is to ensure that owners of property to be acquired and persons to be displaced by federal-aid projects are treated fairly, consistently, and equitably so that they will not suffer disproportionate injuries. Time, impacts, and costs associated with these activities may be substantial (42 USC 61).

CHAPTER THREE

ENVIRONMENTAL AND RELATED FEDERAL REQUIREMENTS THAT IMPACT THE TRANSPORTATION DEVELOPMENT PROCESS

A number of federal requirements outside transportation law must be considered and may significantly impact the TDP. This chapter identifies some of the major requirements and their influence on the TDP.

CLEAN AIR ACT

Notwithstanding NEPA, the Clean Air Act and its amendments (CAAA) of 1990 (42 USC 85) probably has the most far-reaching impacts on the TDP. Although the most substantial implications are for urbanized areas, rural areas are not immune from provisions such as PM_{10} particulates and ozone transport. As stated earlier, a recent AASHTO survey found that the states cite Clean Air Act compliance and air quality conformity as the two mandates from which relief of penalties is most important. Concerns expressed include potential stoppage of the highway program for failure to meet conformity requirements; long time lags between updates to STIP and conformity determinations; and burden on transportation resources to clean up air.

The objectives of clean air legislation are to achieve and maintain national ambient air quality standards (NAAQS). The pollutants of primary focus for transportation are hydrocarbons, nitrogen oxides, carbon monoxide, and small particulate matter. If a state has areas that do not meet NAAQS, these areas are designated nonattainment areas and the state is required to develop a State Implementation Plan (SIP) to reduce pollutant emissions to meet NAAQS.

Transportation plans, programs, and projects must conform to the purpose of the SIP (see 23 USC 23, 134-135). Transportation planning and air quality planning procedures must be integrated to address air quality. EPA may impose sanctions, including the loss of federal highway funds if a state is not making appropriate progress in achieving NAAQS. Nonattainment areas must reduce emissions from the source causing the pollution.

MPOs in nonattainment and maintenance areas are required to determine that the transportation plans and programs for the area conform with the purpose of the SIP. Therefore, the TIP is composed of transportation projects drawn from a conforming transportation plan; both must be consistent with the SIP. If the nonattainment or maintenance area is not part of a metropolitan area, the state carries out this responsibility.

Conformity determinations, using mobile source emissions models, must be made at least every 3 years, but more frequently if there are changes to the transportation plan, the TIP or other projects. Adding new projects to the plan or TIP or changing the scope of an included project triggers an areawide conformity analysis. Also, plans and programs will have to be revised if the area is not achieving conformity (*10*).

CLEAN WATER ACT

The Clean Water Act (33 USC 26, 1251-1376) is directed to restoring and maintaining the integrity of the nation's waters through prevention, reduction, and elimination of pollution. Three requirements have particular significance for the TDP.

Certification

Section 401 of the Act requires the applicant for a permit to conduct any activity that will discharge into the waters of the United States to acquire certification that the discharge will comply with water quality standards. This means that any transportation project construction work will require such certification from the state water quality agency prior to being undertaken.

National Pollutant Discharge Elimination System

The Water Pollution Control Act of 1972 had a goal of restoring and maintaining the chemical, physical, and biological integrity of the nation's waters. The act required EPA to set water quality standards and develop the permitting program (*11*). Section 402 of the Clean Water Act requires an NPDES permit from EPA for point sources, such as storm drain system outfalls, to discharge into the waters of the United States. The permit application must demonstrate how the applicant will assure that the objective of pollution-free discharge is met. The permit has two parts: Part 1 includes submittal of a management program and Part 2 requires a plan for meeting state effluent and water quality standards (*12*).

Wetlands *(13)*

Section 404 of the Clean Water Act requires a permit from the United States Army Corps of Engineers or approved state agency to discharge dredge or fill materials into U.S. waters. Section 404(b)(1) provides for a rigorous justification for project need. A permit can be denied or restricted if the work has an unacceptable adverse effect on municipal drinking water

supplies, fishery areas, shellfish beds, or wildlife or recreation areas. A notice and opportunity for a public hearing is required. Comments on activities requiring a Section 404 permit from the United States Fish and Wildlife Service must be considered. The United States Coast Guard must agree that anchorage and navigation of any of the navigable waters will not be impaired by the project. EPA reviews and comments on individual applications and has authority to veto Corps of Engineers permit decisions. The permitting process can take several months to several years to complete.

Preservation of wetlands is a major consideration in implementation of Section 404 of the Clean Water Act. By Executive Order, federal agencies are required to avoid new construction in wetlands unless there is no practicable alternative that would be less damaging and all practicable mitigation measures are included. Further, FHWA regulations allow the use of Federal-aid funds for the evaluation and mitigation of impacts of a project on wetlands. Consultation with appropriate state and federal agencies is required. If wetlands avoidance cannot be accomplished, then minimizing and compensating impacts are expected. Wetland creation, restoration, and banking are compensation strategies that help achieve the goal of no net loss of wetlands.

CONTAMINATED MATERIALS

The Resource Conservation and Recovery Act of 1976 (RCRA) (42 USC 82) establishes requirements for the storage and handling of waste, including corrective measures or removal. The Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), as amended (42 USC 103), provides that any responsible party associated with a facility from which there is a release, such as a spill or leak, or threatened release of a waste substance that causes a response cost is liable for the response cost. EPA defines hazardous substances and administers the program. The TDP must include provisions for discovering contaminated material sites within the project area and for assessing liability and remediation costs and time for the project. Responsibility commitments from EPA are also essential.

CULTURAL RESOURCES

Several federal laws, in addition to Section 4(f) of the US DOT Act discussed in chapter 2, focus on the protection of cultural resources and impact the TDP. These include the National Historic Preservation Act, Surface Transportation and Uniform Relocation Assistance Act, Archeological Resources Protection Act and the Live American Graves Protection and Repatriation Act (16 USC Conservation). Section 106 of the National Historic Preservation Act has the most influence on the TDP.

Section 106 requires that all federal agencies take into consideration the effect of federally assisted and permitted projects on cultural resources, which include historic sites, buildings, structures, objects, and districts. The National Park Service maintains the National Register for Historic Places and determines which sites will be on the Register. As part of the TDP, the transportation agency is required to inventory the project site for archeological, architectural, and historical features in cooperation with the State Historic Preservation Officer. Prior to approval to damage, demolish, or substantially alter a property that is included in or eligible for the National Register for Historic Places, the Advisory Council for Historic Preservation must be given the opportunity to comment on the proposed action. Records must be made of demolished or altered archeological and historic properties. Preservation of archeological and historic properties may have substantial monetary and time costs for transportation projects.

ENDANGERED SPECIES

The Endangered Species Act of 1973 (16 USC 35) was enacted to ensure that federally funded or permitted actions do not jeopardize the continued existence of an endangered species. The United States Fish and Wildlife Service (USFWS) establishes the endangered species list and administers the Act, which prohibits the unauthorized taking of endangered species or critical habitats.

Under Section 7 of the Endangered Species Act, if a project may result in harm to threatened or endangered species or impact on its critical habitat, a consultation process with USFWS is necessary prior to obtaining USFWS concurrence and NEPA approval. The consultation may be informal for small, noncontroversial projects or formal for large projects or projects for which there is potential for conflict. Endangered species conservation measures may be used as a condition of USFWS concurrence and NEPA approval. Under the formal process, if an endangered species is found and will be affected, a Biological Assessment is prepared and a subsequent impact finding is made by USFWS. The impacts of the Endangered Species Act on the TDP are the time required for the consultation and approval process and the cost and time required for mitigation of impacts. If the impacts cannot be mitigated, the project is essentially stopped, unless exemption is granted by the Secretary of the Interior (*14*).

LAND AND WATER LAWS

Many federal laws are aimed at protecting the nation's land and water resources. They include: Sections 4(f) and 6(f) of the 1966 US DOT Act, the Clean Water Act, the Safe Water Drinking Act, the Wilderness Act, the Wild and Scenic River Act, the Land and Water Conservation Fund Act, the National Trails Systems Act, the Rivers and Harbors Act of 1899, the Marine Protection Research and Sanctuaries Act of 1972, the Water Bank Act, the Coastal Zone Management Act of 1972, the Coastal Barrier Resources Act, and the Farmland Protection Policy Act of 1981 (16 USC and 7 USC 73).

Certainly not all and maybe none of these regulations will apply to a specific transportation project. However, an agency with many projects is likely to encounter one or more of them

on most projects. As a result, it is necessary for transportation agencies to be acquainted with these regulations and to account for their potential application in the TDP.

SOCIOECONOMIC REQUIREMENTS

Many federal laws and other federal requirements are aimed at preserving communities, protecting individuals, or engaging community members in the TDP. A brief description of three of these laws and requirements that impact transportation decisions are discussed briefly.

Civil Rights Acts of 1964 and 1968 *(16)*

Title VI of the Civil Rights Act of 1964 and related statutes provide that no person shall, on the basis of race, color, or national origin, be excluded from participation in, denied the benefits of, or otherwise be subject to discrimination under any program of the federal, state, or local governments. Title VIII of the Civil Rights Act of 1968 guarantees each person equal opportunity in housing. These titles necessitate careful consideration in the TDP to assure transportation employment, facilities, services, and rights-of-way acquisition provide for equitable treatment within all of the listed categories. The Title VI statutes were reemphasized with the Executive Order on Environmental Justice discussed below.

Americans with Disabilities Act (ADA) (42 USC 26)

This law is intended to establish a clear and comprehensive prohibition of discrimination on the basis of disability. It states that no qualified individual with a disability shall, by reason of such disability, be excluded from participation in or be denied the benefits of the services, programs, or activities of a public entity, or be subjected to discrimination by any such entity.

The ADA has many specific provisions related to access by disabled persons to public transportation systems and to other public facilities. For transportation, this includes the transit and highway systems and their appurtenances, such as bus terminals and roadside rest facilities. The implication for the TDP is to provide the disabled community a voice in the public involvement process, have meetings in accessible facilities, and incorporate disabled access provisions into projects.

Environmental Justice

Executive Order 12898 (*15*) implements requirements that federal actions address environmental justice in minority and low-income populations and adds emphasis to the Civil Rights Act of 1964. Implementation of the executive order requires that each mode incorporate the principles of environmental justice into existing programs and policies. A methodology must be followed for identifying adverse impacts, mitigation, and enhancement measures to avoid or offset adverse impacts of transportation programs and policies on minority or low-income populations. Standard practice for achieving environmental justice is just beginning to emerge. The most recent guidance from US DOT reflects the Department's policy on environmental justice *(1)*.

NOISE ABATEMENT REQUIREMENTS

Title 23 of the United States Code requires the Secretary of the US DOT to promulgate standards for highway noise levels compatible with different land uses. Plans and specifications for federal-aid projects cannot be approved unless they include adequate measures to implement appropriate noise abatement criteria.

Part 772 of 23 CFR requires the highway agency to determine and analyze expected traffic noise impacts and alternative noise abatement measures to mitigate these impacts. FHWA will not approve plans and specifications unless reasonable and feasible noise abatement measures are incorporated to meet the criteria and the noise impacts on existing and programmed development are minimized.

The TDP needs to incorporate provisions for identifying potential noise-sensitive development, forecasting noise impacts, and incorporating mitigation measures. Time and cost are the major impacts of noise on the TDP.

SCENIC BYWAYS PROGRAM

Through the Scenic Byways Program, funding is provided to encourage states' commitment to scenic byways. Established under ISTEA, the program is based on recommendations of an advisory committee regarding criteria, standards, and design review procedures. The first group of All-American Roads and National Scenic Byways was designated by the U.S. Secretary of Transportation in September 1996 from nominations submitted by local communities and state and federal land managing agencies.

PROCUREMENT OF SERVICES AND SUPPLIES

There are numerous federal requirements for procuring services and supplies. These include procurement of engineering and design related services, procurement of construction contractors, use of disadvantaged business enterprises and women-owned business enterprises and acquisition of materials and supplies, including the use of American products. The TDP must incorporate procedures for complying with these requirements.

CHAPTER FOUR

COORDINATION AND DECISIONMAKING IN THE TRANSPORTATION DEVELOPMENT PROCESS

COORDINATION AND DECISIONMAKING UNDER TRANSPORTATION LAWS AND REGULATIONS

There are many coordination and decisionmaking requirements for the TDP in Titles 23 and 49 of U. S. Code and associated regulations. The federal transportation requirements are intended to produce a coordination process that begins early in planning and continues through project development. Early involvement and communication with stakeholders (agencies or groups with a specific interest in the project outcome) leads to early identification of issues and better prospects for their timely resolution. As pictured in Figures 1 and 3, the decisionmaking process is intended to be seamless. This means that decisions later in the TDP build on earlier decisions, as more specific project information becomes available. Transportation agencies are not the only decisionmakers on transportation projects. This follows from the fact that most transportation projects have an impact on resources for which other agencies have decisionmaking responsibilities. Therefore, transportation decisions are not the only ones to be made on a transportation project, further emphasizing the need to work cooperatively with stakeholders. Some of the more important coordination and decisionmaking requirements are discussed below. It is not the intent to discuss every coordination and decisionmaking requirement, but rather to provide an indication of their extent.

Metropolitan Planning (23 USC 134-5)

In developing plans and programs for metropolitan areas, MPOs consider 16 factors discussed in chapter 2. Two of these factors involve coordination with other programs and agencies:

- The consistency of transportation planning with applicable federal, state, and local energy conservation programs, goals, and objectives, and
- The consistency of transportation plans and programs with the provisions of all applicable short- and long-term land use and development plans.

In nonattainment areas for ozone or carbon monoxide under the Clean Air Act, the MPO shall coordinate the development of the transportation plan with the process for developing the SIP. Before approving the transportation plan and TIP, the MPO shall provide citizens, affected public agencies, representatives of transportation agency employees, private providers of transportation, and other interested parties the opportunity to comment on the LRP and proposed TIP.

The MPO must develop the TIP in cooperation with the state and affected transit operators. The TIP must be approved by the MPO and the governor. Project selection for federal funding shall be carried out by the state in cooperation with the MPO, except in TMAs, where the STP projects are selected by the MPO in consultation with the state.

TMAs must be certified every 3 years by the Secretary of US DOT for carrying out their responsibilities under applicable provisions of federal law. Section 450.334 of 23 CFR requires MPOs to certify annually that their planning processes meet federal requirements.

Statewide Planning

States are required to carry out statewide planning in coordination with metropolitan planning and to meet its responsibilities for development of the transportation portion of the SIP as required by the CAA. States are required to develop a plan and a program that address all modes of transportation. The state transportation planning process must consider the 23 factors mentioned in chapter 2, seven of which involve coordination:

- The transportation needs of nonmetropolitan areas must be addressed in consultation with local elected officials.
- Any metropolitan area plans must be developed as specified under the metropolitan planning requirements.
- Consideration of state plans developed pursuant to the Federal Water Pollution Control Act.
- Consistency between transportation decisionmaking and the provisions of all applicable short-range and long-range land use and development plans.
- Coordination with MPO plans and programs and reconciliation with those plans to provide connectivity of services.
- Consideration of the concerns of Indian tribal governments having jurisdiction over lands in the state.
- Consideration of investment strategies to improve adjoining state and local roads that support . . . federal agency renewable resources management.

The state plan must be developed cooperatively with state MPOs for metropolitan areas and Indian tribal governments and the Secretary of the Interior for Indian lands areas. The STIP is developed in cooperation with the MPOs for metropolitan areas. Projects included in the STIP must be consistent with metropolitan TIPs and the SIP. The STIP must be approved no less frequently than biennially by the Secretary of US DOT. The state must provide citizens, affected public agencies, representatives of transportation agency employees,

other affected employee representatives, private providers of transportation, and other interested parties the opportunity to comment on the proposed plan and proposed STIP.

NEPA Process

The FTA or FHWA, in cooperation with the applicant, has the responsibility to manage the preparation of the appropriate environmental document. Project applicants and resource agencies have different roles related to the preparation of the document: preparer, joint lead agency, cooperating agency, or support. Other agencies that have special expertise or jurisdiction may be required to be cooperating agencies if asked, although they sometimes decline because of insufficient resources. Early coordination with appropriate agencies and the public is an essential part of this process. State and federal agencies that may be affected are notified and their views solicited. Each state must have procedures approved by FHWA for its public involvement/public hearing program for Federal-aid highway projects. Applicants for FTA capital assistance must hold public hearings and seek input from the public during the scoping process for the environmental documents. Interagency consultations may be required to resolve issues. The approval of the final document must be made by FHWA or FTA, as appropriate (23 CFR 771 and 42 USC 56).

COORDINATION AND DECISIONMAKING REQUIREMENTS PLACED ON THE TRANSPORTATION PROGRAM BY FEDERAL AGENCIES OUTSIDE US DOT

As discussed in chapter 3, many laws affect the TDP. A discussion of the influence on the TDP of some nontransportation federal agencies with transportation related responsibilities is presented here.

United States Army Corps of Engineers

Transportation projects that involve discharge of dredged or fill materials into waters of the United States, including wetlands, require a Section 404 of the Clean Water Act permit approved by the Corps of Engineers (COE) prior to construction. In issuing permits, the COE must consider not only the requirements of the CWA, but any other federal laws that may affect the project. These include wetlands, wildlife habitat, archaeology, historic, contaminated materials, endangered species, parks, and soil conservation. As a result, the 404 permitting process involves not only coordination with the COE, but a host of other agencies, leading to a process comparable to NEPA (33 USC 26, 1251–1376; and *13*).

Environmental Protection Agency

Coordination with EPA is necessary in both planning and project development phases of the TDP. Metropolitan and statewide transportation plans and programs must be consistent with the SIP for achieving air quality conformity requirements, which are approved by EPA. Failure to meet conformity requirements can mean sanctioning of federal highway funds by EPA. At the project level, EPA has veto authority over the issuance of CWA Section 404 permits. It administers the permitting process for the NPDES program found in CWA Section 402. It also administers the CERCLA and RCRA laws for contaminated materials, thus requiring DOT coordination for handling, storage, protection, and determining responsibility for contaminated materials found on a project. EPA also provides consistency determinations on the Section 1429(e) program of the Safe Drinking Water Act (23 USC 134-5; 42 USC 82 and 103; and *13*).

United States Fish and Wildlife Service

The Fish and Wildlife Coordination Act requires federal agencies issuing permits or licenses to consult with USFWS and state fish and wildlife agencies concerning the effects of projects on these resources. Fish and wildlife conservation receives equal consideration with other project purposes, a requirement that is particularly evident in the 404 permitting process, where the COE is required to consult with the USFWS. In essence, it falls upon the transportation project sponsor to reach agreement with the USFWS and state fish and wildlife agency on measures to avoid, minimize, or mitigate impact on fish and wildlife before a permit is issued. Additionally, USFWS administers the Endangered Species Act, and its approval is required for dealing with endangered species encountered on a project (16 USC; and *13*).

Advisory Council on Historic Preservation

The National Historic Preservation Act of 1966, as amended, requires that the Advisory Council on Historic Preservation have opportunity to comment on the effect that federally assisted or permitted projects have on cultural resources. The designated State Historic Preservation Officer normally provides the project review and comments. If adverse effects are determined to exist, the Advisory Council's consultation process is initiated, with the goal of reaching agreement on means of mitigating the adverse effects. If agreement cannot be reached, a hearing may be conducted, and the Advisory Council makes comments to FHWA. Also, the comments are forwarded to the President and Congress. The Secretary of US DOT has delegated the final decision about the project to the appropriate modal administrator (*16*).

National Marine Fisheries Service

The mission of the NMFS is stewardship of the nation's living marine resources through conservation and wise use. The NMFS carries out its charge under many laws and mandates from Congress, including the following statutes: the Endangered

Species Act, which protects species determined to be threatened or endangered; the Marine Mammal Protection Act, which regulates taking or importing marine mammals; and the Fish and Wildlife Coordination Act, which authorizes NMFS to collect fisheries data and to advise other government agencies on environmental decisions that affect living marine resources. The NMFS performs a coordinating role similar to the USFWS under the Endangered Species Act for marine resources (*16, 17*).

Federal Lands Agencies

Right-of-way for projects on federal lands requires easements or similar documents issued by the responsible federal lands agency. Federal lands agencies include U. S. Forest Service, Bureau of Land Management, Bureau of Reclamation, National Park Service, Department of Defense, FHWA Federal Lands, and for practical purposes, Indian tribes. States and local governments cannot exercise the power of eminent domain over federal lands. As a result, the project sponsor must coordinate with the federal land agency, follow its processes (which may be different from similar US DOT processes like NEPA), meet its project requirements, and abide by its decisions.

COORDINATION AND DECISIONMAKING IMPACTS OF THE PUBLIC AND ADVOCACY GROUPS

The FTA and FHWA recognize that public involvement in the transportation investment decisionmaking process is central to the accomplishment of the vision of ISTEA. As discussed above, public participation is required in the planning, programming, and NEPA processes, as well as the MIS process. US DOT policy and FTA and FHWA regulations require MPOs and state DOTs to establish (with public involvement) and adopt their own processes that actively seek public involvement throughout transportation decisionmaking during planning and programming. Federal regulations also require state DOTs and MPOs to demonstrate explicit consideration and response to public input (23 CFR, E and I).

This emphasis on public involvement in transportation decisionmaking started with the 3C (comprehensive, cooperative and continuous) planning process in the early 1960s. It received a major boost with NEPA in 1969. Resource protection legislation, such as the CAA, NHPA, and CWA, was passed about the same time. These laws gave advocacy groups, such as the Sierra Club, the League of Women Voters, the Audubon Society and the Center for Law in the Public Interest the tools necessary to influence transportation decisionmaking. In many cases this influence was negative in terms of stopping projects for which established procedures may or may not have been followed. It has taken time for transportation agencies to learn to coordinate with the public and advocacy groups and involve them in the decisionmaking process early, rather than to wait for a court action on a controversial program or project.

The ISTEA legislation itself was influenced by advocacy groups. This influence affected planning and public participation requirements and programs, such as transportation enhancement and congestion mitigation and air quality improvement (CMAQ). Two groups whose influence has been especially effective are the American Association of State Highway and Transportation Officials (AASHTO) and the Surface Transportation Policy Project (STPP). AASHTO comprises primarily the state transportation agencies of the 50 states. Member states maintain excellent relationships with their congressional delegations, making AASHTO very influential in the legislative process. The STPP is a network of diverse organizations (including many advocacy groups), coalitions, and grassroots groups whose goal is to develop a national transportation policy that better serves the environmental, social, and economic interests of the nation, focusing on moving people and goods, rather than vehicles, without favoring any single mode of transportation (*9*).

CHAPTER FIVE

CURRENT TRANSPORTATION DEVELOPMENT PROCESS ISSUES AND PRACTICES

The previous chapters have described the evolution of the federal transportation development process and its current requirements, including those placed on the TDP from outside the transportation arena. The TDP described is complex and requires extensive efforts by transportation agencies. The purpose of this chapter is to convey what transportation practitioners think about the process and how they are responding to make the TDP work. The survey shown in Appendix A was sent to all state DOTs and 10 metropolitan planning organizations, seeking information on TDP issues and how their organization is responding to the issues. Twenty-seven states and three MPOs replied (see Figure 4) and their responses are summarized in this chapter. It is assumed that the respondents represented the views of their agencies, although their positions and locations within the agencies varied considerably. Several of the survey questions could be answered yes or no, and those responses are summarized in Table 1. Survey question numbers are included with the discussion for each response.

TRANSPORTATION DEVELOPMENT PROCESS (GENERAL)—Q1

Reasonableness of Present TDP Requirements—Q1b

Response to the question about whether the present TDP requirements are reasonable was mixed. While a majority of respondents consider the present TDP requirements reasonable, many have some concerns about the process requirements. Comments favorable to present requirements centered on the emphasis on early identification of issues, environmental concerns, and public participation. Concerns focused on the additional time and resources necessary to carry out the process. There is considerable concern about the number of resource protection programs, such as air and water quality, that have their own processes steming from laws independent of transportation, resulting in duplication of effort and erosion of the NEPA process. Responses reflect the opinion that that decisionmaking authority at the federal level on transportation issues seems lacking. There is sentiment for federal agencies coordinating and integrating their program responsibilities. Several states call for more flexibility in dealing with local conditions and most responses indicate that the volume of regulations is considered excessive.

Innovative Procedures and Approaches to Facilitate Meeting TDP Requirements—Q1c

Most respondents are undertaking approaches that they consider innovative in meeting the TDP requirements. There is considerable focus on improving public participation during the long-range planning and programming stages of the TDP and the need to involve local officials, interest groups, and the general public. The outreach is extending beyond just public

State Transportation Agencies	
Alabama Department of Transportation	New York Department of Transportation
Alaska Department of Transportation and Public Facilities	North Carolina Department of Transportation
California Department of Transportation	North Dakota Department of Transportation
Connecticut Department of Transportation	Oklahoma Department of Transportation
Florida Department of Transportation	Oregon Department of Transportation
Illinois Department of Transportation	South Carolina Department of Transportation
Indiana Department of Transportation	South Dakota Department of Transportation
Kansas Department of Transportation	Texas Department of Transportation
Kentucky Department of Transportation	Vermont Agency of Transportation
Louisiana Department of Transportation	Virginia Department of Transportation
Maryland Department of Transportation	
Minnesota Department of Transportation	
Montana Department of Transportation	**MPOs**
Nebraska Department of Transportation	Denver Regional Council of Governments
Nevada Department of Transportation	Puget Sound Regional Council
New Hampshire Department of Transportation	San Diego Association of Governments

FIGURE 4 Survey respondents.

TABLE 1

SURVEY RESPONSE TO YES/NO QUESTIONS

Question Number	Question	Number of Responses			
		Yes	No	Yes and No	Some
1a	Does your agency believe that present TDP requirements are reasonable?	16	10	4	11
2a	Has your state established a transportation planning and programming process?	30			
2a1	Are the state transportation planning and programming processes documented?	29	1		
2b	Does your state have a good process for integrating state and MPO planning and programming requirements?	28	2		
2b3	Are the financial constraints requirements for planning and programming creating a problem in your state?	18	9	1	
3a	Does your agency believe that in recent years it has been important to advance elements of the TDP?	23	4	2	
3b	In the last 5 years, has your agency advanced or attempted to advance elements of the TDP toward the front end of the TDP?	24	4	1	
4a2	Do you have written agreements for processes that you have integrated with the agencies responsible for administering the requirements?	10	7		11
4a4	Have the integrated processes worked?	14	1		10
5a	Do you consider your agency successful in coordinating its TDP with affected governmental agencies and interest groups?	28		1	1
5b	In the last 5 years has your agency attempted to involve other governmental agencies and interest groups impacting the TDP earlier in the process?	28		1	
5b2	Has this earlier involvement resulted in achieving your agency objectives?	12	2		14
5c	Has your agency had any problems with other agencies or interest groups making commitments during the TDP and changing their commitments later in the TDP?	11	13	1	
5d	Do you believe that there is a need to educate resource agencies and special interest groups on the TDP?	25	4		
5e	Do you believe that there has been sufficient inter-administration coordination of the TDP in US DOT?	9	16	1	
6a1	Are the criteria that your agency uses for determining the type of NEPA document that you are going to prepare for a project accepted by all affected agencies with which your agency works?	20	4	1	

meetings and hearings to the use of such tools as advisory committees, newsletters, public participation tailored to specific projects, toll-free phone numbers, and the internet. Many DOTs have internet home pages and provide the public the ability to communicate directly with agency officials through this medium. Several states are publishing their public participation process through brochures or in documents such as state transportation plans. Undoubtedly, this heightened focus on public involvement is at least partially related to the requirements of ISTEA.

Many of the transportation agencies have developed approaches to involving state and federal resource agencies early in the process and on a continuing basis. This includes partnering and developing formal agreements about how they will work together. At least one state has delegated approval authority for cultural resource surveys to the DOT. Regularly scheduled meetings with resource agencies, streamlined review processes, and documentation of decisions for later reference are being used in some cases.

Emphasis is being placed on moving activities, such as environmental documentation and analysis and project scoping, earlier in the process to minimize surprises and major changes late in the TDP. This includes tiering of the environmental work in some cases. The integration of processes such

as Section 404 permitting and NEPA approvals is a focus. The use of the MIS as an analysis tool is becoming important in some areas.

Several states are placing a major focus on project management and are restructuring the relationship of project development activities, such as using project management teams and performing planning, environmental, and engineering work in parallel rather than serially. Major objectives are to shorten project development time and to control scope and budget.

Changes in Federal Laws or Regulations Essential to Streamline TDP—Q1d

There were many suggestions for changes in federal laws or regulations. In general, they focused on simplifying and streamlining the TDP, reducing federal control, increasing flexibility, and eliminating duplication and single-purpose program influence on transportation programs. Concern was expressed that there are too many requirements within the transportation program itself. Examples include:

- Overlap of MIS, NEPA, and CMS,
- Number of program funding categories created by ISTEA,
- Lack of flexible programming and financial procedures,
- Complexity of FTA regulations,
- Requirements for management systems (now optional),
- Number of planning requirements, and
- Total number of mandates.

These examples suggest that states are looking for more flexibility in the use of federal transportation funds and in the TDP necessary to obligate the funds.

In the environmental area, there is great concern about programs and how the responsible agencies administer them. Recommended changes in laws and regulations include:

- Streamline air quality conformity process,
- Require agencies to make timely reviews,
- Eliminate EPA power over 404/NEPA processes,
- Eliminate redundant environmental regulations and integrate under NEPA,
- Provide consistent regulations for all federal agencies for same process, e.g., NEPA,
- Recodify conflicting laws, such as Section 4(f), Section 106 of NHPA and NEPA requirements of Clean Water Act, and
- Centralize federal responsibility for ruling on alternative selection, permitting, and mediation.

The states are not proposing to eliminate environmental considerations from transportation decisions, but they are looking for ways to reduce the bureaucracy, time, and cost associated with incorporating environmental considerations in the TDP.

Other Important Actions Necessary to Streamline TDP—Q1e

The states and MPOs were asked what actions, other than changes in federal laws and regulations, would streamline the TDP. The responses centered on education of federal agencies, federal assistance in resolving issues, cooperation among federal agencies, speedy responses from federal agencies, early and continuing involvement by federal agencies in the TDP, consistency in application of laws and regulations, and more flexibility for states. There is considerable interest in federal agencies and various offices within US DOT working together to develop consistent and efficient administration of federal programs and requirements. Regulatory and environmental agencies received much of the attention.

Competing or Conflicting Elements of the TDP—Q1f

Several respondents cited conflicts between NEPA and other requirements, including MIS, congestion management systems (CMS), environmental justice, Section 404 of the CWA, NHPA, financial constraints and logical termini. The number of single-purpose agencies with competing missions, leading to different points of view and different approaches to the same requirements and issues, is seen by several states as having a significant effect on the TDP. Several service related subjects continue to be a source of conflict in the TDP. These include: transit vs. highways; limitations on single-occupant vehicles vs. increased travel demand; and funding vs. need. Some states see FHWA and FTA approaches to requirements as conflicting. The different points of view of planners, environmentalists, and engineers are also seen as sources of conflict in the TDP.

TRANSPORTATION PLANNING AND PROGRAMMING PROCESSES—Q2

Statewide Planning and Programming Process—Q2a

All state agencies responding indicated that there is an established transportation planning and programming process, and in all cases except one, that process is documented. The state lacking documentation commented that it does follow the federal requirements for statewide planning and programming.

Integration of Statewide and MPO Planning and Programming Requirements—Q2b1

Twenty-eight of the 30 respondents, including all three MPOs, stated that their agency has a good process for integrating state and MPO planning and programming requirements, although the processes vary greatly. State DOT representation

on MPO policy and technical committees is common. The development of RTPs and TIPs based on state policy guidance is used in some states. In some cases the guidance comes in the form of funding allocations to the MPO. Incorporating RTPs and TIPs directly into the state LRP and STIP by reference, summary, or copy is practiced in a number of states. There is a lot of emphasis on establishing and maintaining close working relationships. Several states provide technical assistance to the MPOs. The range of MPO planning and programming activity varies widely. In one state, all MPO planning is conducted in the state DOT office that does statewide planning, whereas, another state initiates all state transportation projects at the local and regional levels.

Institutional Mechanisms for Assisting in Integrating State and MPO Planning and Programming Requirements—Q2b2

Several institutional mechanisms help integrate state and MPO planning. Process guidelines adopted by state transportation boards or commissions are used in a number of states. Standardized state-developed data bases help assure uniformity of planning and programming documents. Some states have established centralized units to coordinate statewide and MPO planning and programming, and state-mandated regular coordination meetings are held in others. Memoranda of understanding are employed in some cases to assure clear delineation of responsibilities and processes.

Impact of Financial Constraints Requirements on Planning and Programming—Q2b3

About two-thirds of the respondents indicated that the requirements of ISTEA for financially constrained LRPs and TIPs are causing problems. Although not requested, states provided the following comments on the financial constraints:

- It is difficult to demonstrate that the STIP is revenue constrained.
- There is local resistance to financial constraint, especially on the LRP.
- Overprogramming is necessary to cover projects that do not go through.
- It forces priority setting.
- A lot of projects had to be canceled from the STIP.
- This is the most important part of ISTEA (This state favors constraints).
- Twenty-year constraint is not practical, helpful, or realistic.
- Significant problem.

ADVANCEMENT OF TRANSPORTATION DEVELOPMENT ACTIVITIES—Q3

A large majority of the respondents indicated that their agencies believed it important to advance elements of the TDP to earlier points in the process; many agencies have advanced or attempted to advance elements. Much of the focus for advancement is on environmental considerations, including NEPA and activities requiring permits or other agency approvals, such as wetlands and historic preservation. The objectives are to identify critical environmental impacts, identify acceptable ways to avoid or mitigate the impacts, seek early resource agency involvement in the transportation decision-making process and streamline the permitting and approval processes. Some states are finding resource agencies reluctant to make commitments or to even meet early in the TDP. States and MPOs are performing more environmental mapping work, such as wetlands and habitat plans, early in the process.

Several other TDP activities are also being advanced. Early preservation of right-of-way for new corridors is being practiced to control development and minimize costs. Preliminary engineering is being moved to the planning stage in some states to get a better handle on project scopes and cost estimates for the system planning and programming processes. Public participation is being advanced to determine the viability of alternatives and project concepts. Value engineering is being performed early to find ways to reduce project costs. Some states are advancing TDP process activities because federal statutes and regulations require it.

INTEGRATION OF ELEMENTS OF THE TDP—Q4

Twenty-eight of the 30 DOTs and MPOs responding have or are trying to integrate elements of the TDP. Fiscal constraints are commonly integrated into the planning and programming processes. Many states are attempting to integrate NEPA and Section 404 permitting. There is also considerable focus on integrating NEPA and MIS and on incorporating air quality requirements, MIS, and NEPA into the planning process. Some agencies are approaching integration on the basis of the entire TDP.

In the majority of cases, the integrated processes are documented. There are two schools of thought on the use of formal agreements as a mechanism for facilitating integration. One is that written agreements clarify the terms of how the integration is accomplished. The other is that agreements breed too much formality and not an atmosphere of trust and working together. One state uses "Best Planning Practices" developed in cooperation with review agencies to foster integration of processes. Twenty-one of the responding agencies have some form of written agreements for process integration.

The respondents definitely tied success in integrating processes to early and continuing involvement of stakeholders, including the environmental resource agencies; commitment by all involved to make the process work; good communications; understanding the other agency's point of view; trust; and the willingness to compromise. Problems have occurred when one or more of these ingredients has been missing. Regularly scheduled meetings is a tool often used to enhance communications and contribute to process integration success. Several states expressed concern that some resource agencies are unwilling to participate on a continuing or timely basis and are

unwilling to demonstrate flexibility. Twenty-four of the responses indicated at least some success in integrating processes.

Regarding the question about the federal responsibility for process integration, responses varied from the position that integration is just more regulation to stating that the federal government should be responsible for integrating all of the processes it creates. There is much support for a stronger federal role in integrating NEPA and MIS requirements as well as NEPA and the various resource requirements, such as Section 404 permits and 4(f) requirements.

COORDINATION WITH OTHER AGENCIES AND SPECIAL INTEREST GROUPS DURING THE TDP PROCESS—Q5

Coordination with public agencies and interest groups is an important factor in the TDP. Twenty-eight of the responding agencies reported that they consider their agencies to be successful in coordinating with affected governmental agencies and interest groups. Factors cited as essential to coordination success are the following:

- Early and continuing coordination,
- Written agreements,
- Trust and fair dealing,
- Technical credibility,
- Broad interests representation on technical and policy committees,
- Objective, reasonable, and flexible viewpoints by participants,
- Good listening,
- Education of stakeholders on funding, needs, process, constraints, and assumptions,
- DOT initiative to get involvement,
- Timely responses,
- Open communications and process,
- Public forums, hearings, and newsletters,
- Understandable and understood process,
- Desire for consensus and making the process work,
- Involvement by decisionmakers,
- Federal agency staff availability,
- Focus groups for input and feedback,
- Early identification of controversial issues,
- Partnering, and
- Recognizing agencies' authority.

Early and continuing coordination and open communications throughout the process were the most mentioned essential elements for successful TDP coordination. The following agencies were named by respondents as having good coordination programs for their TDP:

- COE coordination process for navigation projects,
- Montana Counties and MPO,
- South Carolina Development Boards and U. S. Forest Service,
- Oklahoma MPOs,
- Washington State DOT,
- Caltrans and California Transit Development Boards, and
- Benton-Franklin Regional Council in Washington State.

Twenty-eight respondents also indicated that within the last 5 years they have attempted to involve other governmental agencies and interest groups earlier in the TDP. Again, a number of reasons were cited, with the most frequent being early identification and timely resolution of alternatives and issues, particularly for permitting purposes. Gaining process and project support together with better products was also mentioned often. Less than one-half of the agencies believe the early involvement has been successful in meeting their objectives. To a large extent this is the result of agencies, particularly the resource and permitting agencies, not being willing or able to participate early in the process. Often these agencies do not want to be involved or make decisions until detailed design information is available. Insufficient agency staffing and/or budgets is also a major problem. EPA, USFWS, and COE were the agencies most frequently identified as not always participating early in the process.

About one-half of the respondents stated that they have had problems with agencies or interest groups making commitments during the TDP and changing their commitments later in the process. Again, the resource agencies are most frequently cited. Reasons given for changing commitments are new information later in the process, changing regulations, changing staff, personal agendas and attitudes, funding issues, commitments reversed at higher agency levels, and political pressure.

Twenty-five of the respondents believe that there is a need to educate resource agencies and interest groups about the TDP. About half of the respondents believe that there is insufficient coordination within US DOT; program coordination between FHWA and FTA was the most frequently cited agency coordination needed. The need for coordination of MIS and NEPA requirements was also mentioned by several respondents.

ENVIRONMENTAL IMPACT ANALYSIS IN THE TDP —Q6

Agencies were asked a number of questions about their practices and experiences with NEPA and other environmental requirements associated with the TDP. Agencies use several criteria in selecting the type of environmental document (categorical exclusion, environmental assessment, or environmental impact statement). Almost all use the expected significance of impacts as a criterion. Expected public controversy, project complexity, federal regulations and FHWA advice were also frequently cited criteria. The amount of change from existing conditions, project location, potential for litigation, ability to mitigate impacts, amount of right-of-way required, and environmental agency scoping are also criteria used by various agencies. Twenty of the respondents indicated that all affected agencies accept their criteria, while four respondents stated that their criteria were not always accepted.

NEPA activities most frequently performed during the planning phase of the TDP are environmental data collection and issue identification, early coordination, air quality conformity analysis, and scoping. Some agencies indicate that they do no NEPA work during the planning phase, while others state that they perform all NEPA type activities during this phase. Alternative and fatal flaw analysis and GIS data mapping are also performed during the planning phase by some agencies.

Tiered EISs are not commonly used. Eleven respondents have tried it on a limited basis and only four have had any success with this process. The most commonly mentioned problems identified with the tiered EIS approach are redundancy with the final NEPA document, unwillingness of agencies, particularly environmental, to work with high-level data and not having projects that meet the criteria for using the tiered approach. Several states, however, believe that the concept is good.

Twenty-one respondents report success with incorporating other environmental requirements into the NEPA process. In a few cases, the respondents reported full incorporation, but in most cases success was with specific requirements. Historic preservation, Section 4(f), Section 106, and Section 404 requirements have been commonly incorporated into the NEPA process. MIS, consultation on endangered species, coastal zone management, farmland and floodplain protection, hazardous waste, Forest Service requirements and land banking for biological habitat mitigation are other environmental requirements that have been successfully incorporated into the NEPA process by some respondents.

TOOLS AND TECHNIQUES—Q7

Table 2 lists tools, techniques, and expert systems that respondents use to streamline the transportation development process. The list is arrayed by agency and the TDP activity to which the instrument applies. The agencies were also asked to identify research that they believe is necessary to help streamline the TDP. These responses are shown in Figure 5.

TABLE 2

TOOLS, TECHNIQUES AND EXPERT SYSTEMS FOR STREAMLINING THE TDP

Agency	TDP Activity	Tool or Technique	Expert System
Alaska DOT & Public Fac.	STIP: Needs Defined	Unified statewide needs list with project prioritization via scoring process	
Caltrans	Environmental	MOU for integrating NEPA and 404	
	TDP		Work breakdown structure for TDP tracking and accounting of labor costs
	TDP		Performance measures
Connecticut DOT	Rare and endangered species review	Mapping and coordinated review	
Denver Regional Council of Governments	TIP	Coordination with STIP Process	
	MIS	Coordination committee for multiple studies	
Florida DOT	Public involvement	Workshops and public hearings	
	Wetland studies	Wetland evaluation report, consultation document and Wet II analysis	
	Water quality	Water quality impact evaluation report and consultation document	
	Endangered species	Endangered species biological report and informal consultation	
	Cultural resources	Cultural resources report and consultation document with SHPO	
	TDP		Commitment tracking process
Illinois DOT	Programming	Traffic demand model	
	Traffic projections	HPMS	
	Land use planning	Integration of Chicago Area Transportation Study & Northeastern Illinois Planning Comm.	
	Growth projections	DRAM-EMPAL model	
	Large project dev.	Corridor planing councils and task committees	
	MIS	Committees	
	Coordination	NEPA/404 merger	

TABLE 2 *(Continued)*

Agency	TDP Activity	Tool or Technique	Expert System
Illinois DOT	Air conformity	Air model (Mobil 5A)	
	Noise analysis	Noise model	
	Natural resources Impact analysis	Wetland delineation, floristic indexes, and Point-Center-Quarter (vegetation count)	
	Economic analysis	RIMS II model	
	Consultant selection and programming		"Expert Choice"
Indiana DOT	Programming		Project selection groups tailored to project type
Kentucky Transportation Cabinet	Communication	E-mail with federal and state agencies	
	Project management	Computerized project status report system	
	Baseline information	GIS Data Base	
	Project alternatives analysis	CADD (In Roads)	
	Traffic modeling	MUTD	
Louisiana DOT & Development	Scoping	Solicitation of views process with other agencies	
	Highway and Transit Program Develop.	Department and MPO staff coordination for integrating TIPs and STIP	
	Programming	Legislature hearings for public input for next year's highway program	
	Environmental	Environmental checklist	
	TDP		Public involvement program
Maryland DOT	NEPA/404	Monthly interagency meetings and field reviews	
Minnesota DOT	Environmental documentation	Programmatic categorical exclusion	
	SHPO approval	Programmatic agreement	
	Categorical exclusion	Programmatic CE for particular list of types	
	Documentation	Project managers handbooks	
	Project tracking	ARTEMIS software	
	Pubic involvement	Systematic development of informed consent	
Nebraska Dept. of Roads	Programming	GIS mapping	GIS analysis of road conditions for setting priorities
New Hampshire DOT	Project review	Regularly scheduled meetings with resource agencies	
	Project review	Interest groups and public advisory task force meetings	
	NEPA and 404	Scoping and rationale reports as interim documents to memorialize decisions	
	NEPA and 404	"Highway Methodology"–COE's Guidance for integrating NEPA and 404	
	Environmental	GIS Mapping—facilitates preparation for constraint mapping	
New York DOT	Programming	Goal oriented program	
	Programming	Management information system	
	Scoping	Scoping process	
	Environmental		CAPER—Computer Aided Protocol for Environmental Reports
North Carolina DOT	Alternatives Develop.	Interagency meetings	
	Environmental	Programmatic CE process	
	Education of local governments	Annual MPO meetings	
		Biannual training classes	

TABLE 2 *(Continued)*

Agency	TDP Activity	Tool or Technique	Expert System
North Carolina DOT	Public involvement	Thoroughfare plan hearings—system planning 15 annual meetings across state—STIP Public meetings for each phase of EIS—project planning	
North Dakota DOT	Scoping	Project concept report for written coordination during preliminary project planning	
	Project development	Partnering meetings with concerned agencies and interest groups during preconstruction	
	TDP	Citizen advisory teams	
Oklahoma DOT	Early project planning	Merging environmental and design considerations	
Oregon DOT	Scoping	On-site scoping with internal staff and resource and regulatory agencies personnel	
	Data collection	Publications from agencies for early identification of resources	
	Project design	Statewide electronic sharing of design files	
	Project management	Cradle to grave project management with project development teams	
Puget Sound Regional Council	Data mapping	GIS system	
	CAAA conformity	Subregional air quality model	
	Communication	Agency newsletter Internet Access with local agencies and state DOT for data exchange and project obligation monitoring	
	Planning	Travel demand and modal models integrated with land use models	
	Plan and investment alternatives		Least cost planning model
San Diego Association of Governments	Communication and coordination	Extensive standing and ad hoc committee structure	
	Forecasting	Developed regional population growth and travel forecast used by all agencies	
South Carolina DOT	Project initiation	Letter of intent to request input from agencies and interest groups	
	Scoping	Scoping meetings with resource agencies	
	Environmental	Partnering meeting with resource agencies for working together	
	Project development	Interagency meetings at appropriate stages to discuss mitigation and permitting	
	Project development	Open house public hearings to develop one on one relationships with public and stockholders	
Vermont Agency of Transport	Long range plan	Statewide planning tool to guide direction	
	Transportation planning initiative	Umbrella that bottom-up initiative falls under. includes regional planning commissions as partners	
	Scoping	Flow chart and manual for public and resource agencies to see how they fit	
	Design	Engineering flow chart to help public and resource agencies understand process	

TABLE 2 *(Continued)*

Agency	TDP Activity	Tool or Technique	Expert System
Vermont Agency of Transport	Project management		Preconstruction project management system
	Design		Traffic management information system database
Washington DOT	STIP	Foxpro software	
	TIPs	Format and process for TIP development	
	TIPs and STIP amendments	Streamlined process for governor's office and FHWA/FTA approvals	
	Scoping/prioritization	AASHTO benefit/cost methodology	
		Mobility estimate by Univ. of Washington	
	Environmental review and design	NEPA, SEPA, 404 merger agreement	
		Monthly meetings with COE	
		Annual prospectus review meetings with agencies	

- Identify lower cost methods of ITS technology applications to monitor system performance and assess effectiveness of investments
- Determine effectiveness and benefits of tiered environmental process with subsequent acceptance by federal agencies
- Benefit/cost research on environmental degradation, such as the value of loss of wetlands
- Identification and sharing best practices
- Simple illustration of the complexity of TDP process
- Legislation needs to create a centralized review agency with power of approval of project analysis, alternative selection and mitigation requirements
- Investigation of method to convert NEPA process from project planning process to tiered systems/project planning process
- Nitrogen oxide (NOx) modeling
- How to warehouse and retrieve data that is at an engineering level of accuracy so it can be used in the future
- Methods for identifying and measuring secondary/cumulative impacts
- Methods to reduce redundant and/or conflicting policies or procedures of federal agencies, including different funding cycles and requirements and duplicative reporting requirements, especially those in USDOT
- Better wetland evaluation techniques
- Better social impact analysis techniques
- Better wildlife mortality reduction tools
- Methods used by DOTs to determine when to initiate an EA or an EIS
- Document successes, monitoring existing efforts and critiquing end products
- Methods for keeping a topic on the front burner
- Methods to eliminate regulations
- Methods to eliminate conflicts
- Methods to define leadership roles
- Methods to document process costs
- Methods to define accountability

FIGURE 5 Research proposed by respondents to streamline TDP.

CHAPTER SIX

CASE STUDIES OF THE TRANSPORTATION DEVELOPMENT PROCESS

This chapter provides specific examples of how several states are handling some of the more difficult facets of the TDP. Each state must use processes that fit its particular circumstances, but many of the ideas presented can be adapted elsewhere.

OKLAHOMA DOT

Early Project Planning: Merging Environmental and Design Concerns

Oklahoma DOT uses a 31-step project scoping and development process that takes a project from initiation through post construction design and maintenance evaluation. These steps are incorporated into five phases of the development process. Figure 6 shows the process schematically. The diagram reads from the top to bottom and from left to right. Responsible parties for the various phases of development are also shown (*18*).

Following adoption of the 5-year construction program (step 5), the Environmental Coordinator identifies those projects requiring environmental clearance, initiates an environmental resources review by a team of specialists, and arranges for a field inspection by a team that includes design, survey, field, and planning personnel. The inspection teams may be in the field several days, reviewing many projects. They evaluate each project for design/construction alternatives and requirements, logical termini, and hydraulics, right-of-way, utilities, and environmental concerns. They recommend whether a project should have formal scoping. The Environmental Coordinator prepares a summary of the field inspection findings and circulates it to team members and management. This process has worked well in integrating and/or solving some environmental concerns very early in project development.

A project will require formal predesign scoping if there are significant environmental or design issues to be considered. The scoping team, which is led by the Environmental Coordinator, also includes technical specialists who can effectively represent their functional areas, and an FHWA representative. The team receives input from the public and outside interested parties regarding project issues and alternatives. It clarifies the need for the project; establishes logical project termini; develops consensus on the preferred alternative, including major design features; and addresses major environmental issues. An Environmental Analysis Check List is used to minimize overlooking environmental issues. The team determines if the project scope and cost are compatible with the 5-year program or require recycling to the Commission. If permits such as Section 404 are required for the project, the permitting agencies are brought into the project during the scoping stage so that their concerns and alternatives can be addressed early, smoothing the way for later approval. Draft environmental documents are prepared and attendant public hearing processes are conducted during scoping evaluation. The final predesign scoping report is issued after FHWA approval of the environmental document. The final report includes identification of mitigation measures to be included in the project. The predesign scoping process for US 59 major reconstruction

PHASE	PROGRAMMING	PREDESIGN	DESIGN	CONTRACTING	CONSTRUCTION
Responsible Party	**Programming Division**	**Environmental Coordinator**	**Project Engineer**	**Office Engineer**	**Resident Engineer**
	Project initiation Preliminary consideration Priority analysis Fund analysis Commission approval	Tracking initiation Data collection Solicit comments Organize scoping On-site inspection Select alignments Cost estimates Preliminary report Value engineering Environmental process Environmental clearance Predesign report	Final survey Preliminary design Value engineering Plan in hand Plan review Final R/W plans R/W acquisition an utility relocation Plan submission	PS&E approval Advertise/award	Construct project Post-construction design evaluation Final maintenance review (maintenance engineer)

FIGURE 6 Steps for Oklahoma DOT's project scoping and development system.

through Stilwell, Oklahoma took about 3-1/2 years to complete, considered a typical duration for this type of project (*19*).

The predesign scoping process works well. It has resulted in an appreciation of environmental issues by designers, resolved issues early in project development and established a project scope that results in few changes during design.

Oklahoma DOT has a memorandum of agreement with FHWA for the conditions for and processing of Categorical Exclusions that has greatly streamlined environmental processing and eliminated unneeded environmental assessments (*20*).

WASHINGTON STATE DOT

State Transportation Planning Process

Washington State DOT (WSDOT) has a well-defined and documented and highly integrated state transportation planning process that fully supports the guidance provided through ISTEA and other state and federal legislation, such as the Clean Air Act. In general, the process includes:

- State Transportation Policy Plan, Statewide Multimodal Transportation Plan, Regional Transportation Plans, Local Comprehensive Plans (including transportation element) and special transportation district plans
- State Transportation Improvement Program and Metropolitan Area Transportation Improvement Programs
- Project selection for metropolitan areas over 200,000 population by Transportation Management Areas in consultation with WSDOT and joint federal project selection in smaller urbanized areas and rural areas by MPOs, Regional Planning Organizations, County Lead Agencies and WSDOT
- Consistent statewide project selection criteria developed by state advisory committees
- Fiscally constrained TIPs, with identified project funding from existing sources and the ability to advance projects that fail to meet program schedules.

In addition to federal legislation, Washington State Legislation calls for WSDOT to prepare a Statewide Multimodal Transportation Plan for the Transportation Commission and requires cities and counties to prepare integrated comprehensive plans composed of six elements, including a 20-year transportation element. State legislation also requires coordination of plans.

Policy direction for transportation planning at all levels of Washington government comes in the form of a Transportation Policy Plan which is updated annually. A steering committee, staffed by WSDOT and representing the transportation community, identifies policy issues. Through the use of subcommittees and public participation, the steering committee studies the issues and makes policy recommendations to the Commission. The Commission considers the Steering Committee recommendations and public comments and adopts policies. These adopted policies are then submitted to the State Legislature for consideration and adoption in forms such as new laws, enhanced institutional coordination and new funding. The Policy Plan direction is well accepted at the regional and local government levels because they participate in its development through the Steering Committee (*21*).

The Statewide Multimodal Transportation Plan is a 20-year plan, updated biennially, which meets ISTEA requirements for long-range planning. It comprises a state-owned component (state highways, ferries, and state airports) and a state interest component (public transportation, passenger rail, freight rail, marine ports and navigation, nonmotorized, and aviation). The plan is based on service objectives adopted by the Commission. Solutions to identified deficiencies are developed through consultative process between WSDOT and the MPOs and other regional planning organizations. Service objectives and solutions are prioritized by the Commission to establish the 20-year plan, a 6-year plan, and a 2-year budget, all fiscally constrained. State interest components are developed through the use of advisory committees with public input. The plan is adopted by the Commission and the Legislature approves WSDOT's 2-year budget based on the plan. There is a formal, Commission-approved public participation program for development of the Statewide Multimodal Transportation Plan (*22*).

WSDOT has developed a detailed description of how it meets the statewide planning requirements, including the 23 factors, provided in ISTEA and 23 CFR 450. FHWA and FTA strongly endorse WSDOT's approach to the statewide planning requirements.

NEW YORK STATE DOT

Application Of Federally Recommended Management Systems to the STIP Process

NYSDOT uses a Goal Oriented Program (GOP) process to develop its annual 5-year program of transportation projects (STIP), with the objective that, when implemented, system conditions will meet or exceed Department goals for pavement and bridge condition, safety, and congestion level. The goals include system performance measures. NYSDOT has 11 regional offices that develop their programs in accordance with the GOP guidance provided by executive management and in cooperation with the MPOs. The regions use an extensive outreach effort to the public, interest groups, and local officials while developing their updated 5-year programs. The regions use a variety of technical tools to study alternate strategies to meet the goals and policies set by executive management.

When a region, in cooperation with the MPOs and other stakeholders, has developed an updated 5-year program that it believes is best for its area, it submits a report to NYSDOT Headquarters for review and approval. The report details the projects the Region intends to implement in the 5-year period, describes the rationale used in developing the program, lists the proposed accomplishments and shows the forecasted system conditions at the end of the program period.

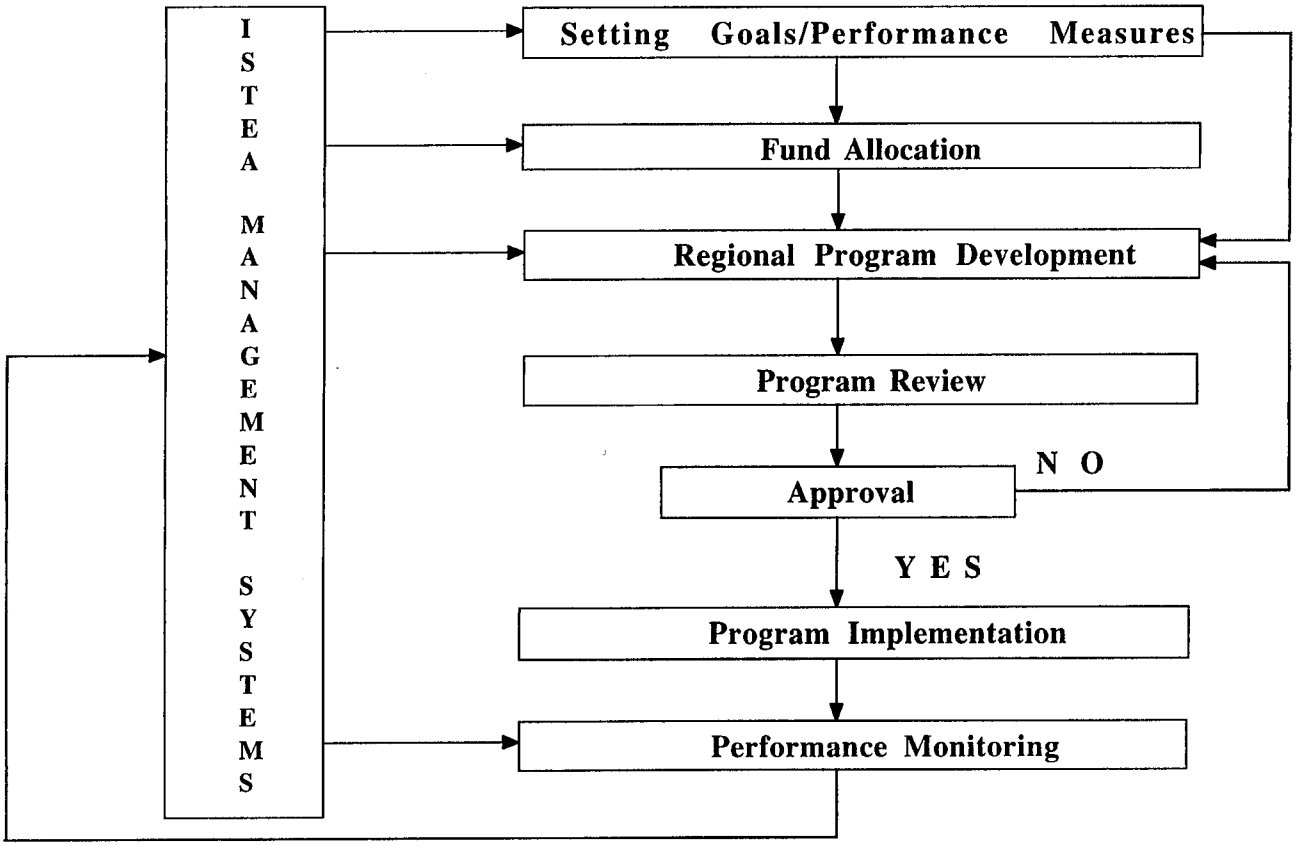

FIGURE 7 Integrating management systems into the NYSDOT goal-oriented programming process.

This programming process works well because the MPOs and local officials are involved in the process. More follow-up is needed on issues that arise during review of the programs and better monitoring of implementation is needed. NYSDOT believes that elimination of the federal requirement on fiscally constrained STIPs would help the process by overprogramming to accommodate bid savings and project slippage (*23*).

The six management systems originally mandated by ISTEA and an associated traffic monitoring system are being developed in NYSDOT to support and enhance the decision-making for the GOP. Although management systems are no longer a federal mandate, NYSDOT is continuing with their development and use as a preferred approach to measuring system performance and prioritizing projects. NYSDOT is presently using the systems for both state and federally funded state highway projects and is investigating their application for local systems. In addition to assisting executive management development of system performance goals, the management systems assist the regions in evaluating and forecasting system performance under alternative investment strategies. Management system technical tools such as pavement, bridge, and congestion forecasting models are used to evaluate the impact of alternative construction, operational, and preventive program strategies on end conditions. The management system information is then used by the regions when submitting their reports justifying their 5-year program. Once the program is approved, updated management system information based on the program goes into files as input for the next year's goal-setting activity. Figure 7 shows how the management systems are used in the GOP.

The mission of NYSDOT is to provide adequate, safe, balanced, and efficient transportation at reasonable cost to the people of the state. The Department sees its business as achievement of this mission by maintaining and improving the state's infrastructure and operation. The management systems are central to this work and will provide a framework for consistent approach and criteria to establish priorities for addressing the state's surface transportation system needs.

NYSDOT has approached the integration and coordination of the management systems in three ways:

- Administrative coordination is carried out through policy direction and project management. An executive steering committee provides general oversight. The overall management system development has two joint executive directors and a project coordinator. A system developer, supported by a technical committee, is assigned to develop each management system.
- Functional coordination and integration of management systems is provided through policy direction from the executive steering committee and on a day-to-day basis by the project coordinator. A working group, comprising the system developers, a coordination team, FHWA, MPOs, and other department personnel, advises and assists the project coordinator on system coordination and integration.
- Technical coordination is being accomplished in part through the development of a geographic information system

(GIS). Additionally, there is considerable technical system design being done on the basis of user needs, relationship among systems, and common data requirements. A team of computer analysts works full-time in developing and integrating automation elements of the management system project.

NYSDOT has developed guidelines for management system development, which include: preparing a concept plan, defining management system scope, recognizing existing processes and technical tools, incorporating essential components into the management systems, staging system implementation and the use of technical committees. The technical committees are composed of internal staff and FHWA staff, but more importantly, have representatives from MPOs, principal customers such as local governments and interested outside parties such as transit providers and FTA. This helps assure consensus on management system development and implementation.

The Department believes that research on user costs would be beneficial to the management system effort. User costs are an excellent measure to assess the merits of competing projects within and across program areas (*24*).

KENTUCKY TRANSPORTATION CABINET

Public Participation in the Development of the Long-Range Transportation Plan and the STIP

Kentucky develops a Statewide Transportation Plan (STP) that has a 20-year long-range element and a short-term element comprising a 6-year highway program and a 2-year public transportation program, which serve as the basis for the STIP. The STP is updated when changes require, or at least every 2 years to coincide with the state legislative budget cycle. In response to ISTEA requirements, Kentucky has adopted an aggressive program for public involvement that starts at the beginning stages of preparing the STP and carries through to final adoption of the STP and STIP. The adopted public involvement process is published in the STP and is available to the public at Kentucky Transportation Cabinet District, Area Development District and MPO offices (*25*).

The objective of the STP/STIP public involvement process is to provide "grass-roots" input regarding regional priorities into the "front-end" of the STP and a statewide public review and comment for the drafts of the STP and STIP.

Area Development Districts (ADDs) and MPOs form the backbone for public participation on regional needs and priorities. MPOs conduct their own public involvement programs. The ADDs are regional planning clearinghouses. There are 15 ADDs, and each has a full-time transportation planner funded by the Kentucky Transportation Cabinet.

Each ADD's general public involvement process includes the following (*26*):

- Establishment of a Regional Transportation Committee (RTC) that is representative of the transportation environment for the area and includes a diverse group of interests that impact or are impacted by the transportation system. The portion of the population that is underserved by transportation must be identified and involved. The Committees comprise local elected officials, community leaders, and interested citizens.
- Conduct RTC meetings on at least a bi-monthly basis to conduct business and educate Committee members on the transportation planning process.
- Conduct a public meeting to discuss the state transportation process and solicit direct input from the public.
- Develop procedures for documenting RTC and public meetings.
- Periodically review its public involvement process and make appropriate changes.

The statewide planning process begins with the MPOs, the Cabinet's district offices and ADDs, through their RTCs, identifying new needs, unscheduled needs from an existing unfunded needs list, and projects in the current STP for consideration in the next STP. The Cabinet Central Office revises and reconciles the unfunded needs lists and returns them to the ADDs and district offices for prioritization together with the projects in the current STP for consideration in the next STP. Projects are ranked by the RTCs as high, medium, or low priority, roughly in thirds based on the planning factors of ISTEA. The RTC and District rankings provide the regional priorities, and central office staff ranks projects for statewide priorities. Projects are placed into the STP based on the highest rankings of the three efforts. High, High, High ranked projects go in first, followed by High, High, Medium, etc., until the funding mark is achieved. The STP is drafted from the STP project listing. The highway element of the STIP requires Kentucky state legislature approval of the 6-year highway plan.

Once the draft STP is developed, it is subject to a 60-day comment period that is advertised in statewide newspapers. Copies of the draft are publicly displayed in each of the ADD, MPO, and Cabinet district offices. Notices of availability of the draft STP are sent to all county executives and mayors of cities over 5,000 population. Copies are also sent to transit providers, other state agencies and individuals asking to be on the official Cabinet mailing list. Kentucky Transportation Cabinet works with the ADDs to identify groups that have been underserved by existing transportation systems and involve them in the process. Public meetings are held at locations where the plan is complex or there is a high public interest. Following public comment, the Cabinet aggregates and responds to the comments and then finalizes the STP with appropriate changes. The process for updating the STIP is similar to the STP except that the comment period is 45 days (*27*).

The STP/STIP Public Involvement process in Kentucky is evolving and improving. The front-end ranking process involving the ADDs shows tremendous promise. Everyone involved is enthusiastic about making it succeed in order to add value to Kentucky's transportation program.

Three issues related to federal actions impact the viability of the Kentucky STP/STIP process. Nonhighway elements often depend on local funding matches for federal funds. The

NHDOT Project Development—Environmental Phases*	ACOE Actions Under Highway Methodology
Phase I: Data Collection/Coordination	*Phase I: Major Alternatives*
Project Background/Orientation	
Agency Coordination/Scoping**	
Data Collection	ACOE Signoff on Purpose and Need
Issues Identification	
Conceptual Corridors	
Scoping Report/Technical Memoranda	
Phase II: Screening of Conceptual Corridors	
Qualitative Impact Assessment	
Rationale Report***	
	ACOE Signoff on Reasonable Range of Alternatives
Phase III: Draft Environmental Impact Statement	*Phase II: Alternative Analysis to Identify LEDPA*
Refined Alternatives Analysis	
Detailed Impact Evaluation	
Mitigation	
Prepare/Distribute DEIS (FHWA Approval)	404 Permit Application to ACOE
Phase IV: Public Hearing	
Prepare Hearing Plans	Joint DOT/ACOE Public Hearing Notice
Conduct Public Hearing	Joint DOT/ACOE Public Hearing
Phase V: Final Environmental Impact Statement	
Analyze/Respond PH Comments	ACOE Signoff on LEDPA
Identify Selected Alternative	
Refine Mitigation	
Prepare/Distribute FEIS (FHWA Approval)	ACOE 404 Permit
Permits/ROD Issued (FHWA Issues ROD)	

*These are the phases for an EIS (slightly different for an EA, but reflective of the typical process).
**Throughout project development, coordination with agencies, public involvement and refining of technical memoranda continues. Monthly meetings are conducted with Federal and State natural resource agencies to discuss projects. In addition to public informational meetings, it is common for a CATF to be established consisting of RPC, local officials and citizens of the affected communities.
***Now attempting to get written concurrence from the agencies on the reasonable range of alternatives decision.

FIGURE 8 New Hampshire DOT's method for merging NEPA and Section 404 processes.

uncertainty of the match availability makes fiscal restraints difficult to forecast. Cutbacks in federal transportation program funds equate to fewer projects, which increases the competition and urgency to move projects forward within the STP/STIP. Changing the minimum STIP period from 3 years to 2 would help in Kentucky's 2-year budget cycle, according to state officials.

NEW HAMPSHIRE DOT

Process For Consideration Of Alternatives and Environmental Documentation

New Hampshire has an objective of efficiently processing projects to minimize delays and reduce project costs. To help achieve this objective, NHDOT has developed a structured, consistent, and unbiased process for consideration of a full range of transportation project alternatives and documentation of their environmental impacts. This process is necessary to establish the Department's credibility with the resource agencies and the public. A key element of the process is continued and coordinated discussion with all stakeholders to help assure that the final documentation accurately reflects current conditions and expected future outcomes. The intent is the best decision, not the best document. In addition to fulfilling NEPA requirements, the documentation supports state and federal permitting actions (*28*).

NHDOT follows the NEPA requirements for alternatives analysis and environmental documentation. Projects are developed through the five-phase approach: 1) data collection/coordination; 2) screening of conceptual corridors; 3) draft EIS; 4) public hearing; and 5) final EIS. The left side of Figure 8 shows the process in more detail.

The TDP also emphasizes the integration of NEPA and the Section 404 permitting process. A cornerstone for this success has been regularly scheduled project review sessions with state and federal resource agencies, including the COE, USFWS, EPA, and their state counterparts. Historical and natural resource agencies may also attend. This provides for a broad spectrum of competing environmental issues to be addressed in a balanced way.

For merging NEPA/404, NHDOT correlates its NEPA documentation efforts with the planning and decisionmaking tool "The Highway Methodology" developed by the New England Division of the COE. The Highway Methodology process is nested into the COE's permitting process and consists of the following major steps (*29, 30*):

- COE determines basic project purpose.
- Avoidance, Phase I: First iteration of viewing potential alternative alignments against a series of constraint map overlays and a test of practicality. Phase I concludes with the selection of a limited list of practical alternatives.
- Avoidance, Phase II: Evaluation of COE approved limited list of practical alternatives.
- COE selects least environmentally damaging practicable alternative (LEDPA).
- Minimization and mitigation of unavoidable impacts identified.
- Compensation required for losses identified.
- Monitoring implementation.

The relationship between these steps and the permitting process is shown on the right side of Figure 8.

NHDOT has developed two specialty documents as precursors of the NEPA document to successfully reach the conclusion of Avoidance, Phase I. "Scoping" and "Rationale" reports (*31,32*) are used to expand institutional memory and to support requests for sign-offs from the COE in accordance with their Highway Methodology. The Scoping Report, which derives its name from NEPA scoping, discusses in detail purpose and need for the project, the affected environment and conceptual alternatives under consideration. The Rationale Report presents the rationale for eliminating some alternatives from further consideration and continuing evaluation of other alternatives. It is particularly valuable to the COE and other resource agencies in deciding on a reasonable range of alternatives as the COE moves toward selection of the LEDPA. The Scoping and Rationale reports address the problem of having to reconstruct decisions and information for environmental documents prepared months or years later. It is intended that material presented in these reports can and will be incorporated in the project environmental document.

The process described here allows for more expeditious reviews of environmental documents by NHDOT and FHWA staff, as well as by resource agencies and the general public. However, the environmental documentation effort has been protracted in comparison to the NEPA process in earlier years. The Scoping and Rationale reports promote outside involvement and early identification and discussion of issues. This provides the opportunity to address concerns prior to public hearing. The process has also led to some criticism of NHDOT for not fully considering nontraditional transportation solutions. This has led the Department to sponsor a statewide transportation planning effort to "provide recommendations for developing a coordinated . . . transportation system that will facilitate the movement of persons and goods in a safe, cost-effective, efficient, and environmentally conscious manner."

Recommendations from the New Hampshire experience are: one federal agency should have responsibility for Section 404 permitting decisions; process integration or merger efforts should not be limited to wetlands and water quality issues; and federal agencies participating in the process must be committed to full and impartial involvement, respect the rules and tenets of the process, and officially sign off at important decision points.

MINNESOTA DOT

ISTEA Implementation Guidance for Development of a STIP

Mn/DOT has published a document that provides detailed guidance for the development of the Minnesota STIP. It is intended for use by the transportation partners involved in the process and provides an overall framework for the TIP/STIP process. The table of contents for the Guide is shown in Figure 9 (*33*).

FIGURE 9 Table of contents from *Guidance for the Development of the Minnesota STIP.*

The document provides broad information about federal requirements for the development of the STIP including types of projects, funding sources, public participation focus, relationship to regional TIPs and federal transportation programs. However, the guide's focus is how the STIP development process is structured in Minnesota, where the transportation investment process is based on several principles:

- A statement of statewide goals, objectives, and strategies,
- Comprehensive planning with local, regional, and state involvement,
- Planning for all modes of transportation integrated into one process,
- Multi-county geographic regions as the basis for investment decisions,
- An emphasis on the preservation and management of existing systems,
- Flexible regional funding targets,
- Prioritized areawide transportation investments,
- Fairness, equity, and accessibility, and
- Use of ISTEA management systems to assist in planning and priority decisions.

Public involvement is an integral part of the STIP development process and has both formal and informal aspects in Minnesota. The formal aspects take the form of required notices for public comment and public meetings. The public also has the opportunity to comment on proposed public involvement procedures. Informal public involvement takes place through the public's access to individuals on policy and technical committees. Mn/DOT encourages early and continuous public participation, going beyond the required process, and use of the techniques described in "Innovations in Public Involvement for Transportation Planning" a report distributed by FHWA and FTA in 1994.

With Mn/DOT providing state transportation goals, including system investment priorities and funding targets, a key to the success of the Minnesota STIP process lies with the Area Transportation Partnerships (ATPs) (*34*). These multi-county partnerships, formed along the boundaries of the Mn/DOT districts, are responsible for bringing together the transportation investment recommendations of the Regional Development Commissions (RDCs), MPOs, and Mn/DOT and integrating them into an Area Transportation Improvement Program (ATIP). They are also responsible for managing the implementation of the ATIPs. As a minimum, ATP membership is composed of executive directors or policy or technical committee chairs of the RDCs and MPOs and the Mn/DOT district engineer. Transit agencies and other organizations may also be ATP members.

The MPOs, RDCs, and Mn/DOT Districts solicit highway and transit capital projects and priorities. The MPO candidate projects and priorities developed through the TIP process are input to the ATP priority decisionmaking. The final MPO TIP must reflect the final STIP; counties and cities submit candidate projects and priorities to the appropriate partner. MN/DOT's Central Office is responsible for steering the process, assigning target funding levels, and submitting candidate projects.

Only federal-aid highway funds and transit capital assistance are programmed through the ATIP process. Nonfederal-aid highway funded projects are provided to the ATPs for information. The ATIPs are fiscally constrained. Draft environmental documents or appropriate MIS requirements must be completed for major projects prior to inclusion in the ATIPs. The draft ATIPs are combined into a list of STIP candidates. The project lists by funding uses are analyzed against state goals, regional priorities, funding targets, balance between modes, the various federal categories, and historic funding. The draft STIP is then generated and circulated back to the ATPs for review and comment. Requests for additions or funding changes must be accompanied by offsetting funding recommendations. Once the final STIP is approved, it enters the implementation and management phase, with particular attention to project costs, scopes, and schedules. Each ATP and Mn/DOT district establishes criteria for project changes requiring programming reconsideration by the ATP. A process for amendment of ATIPs and STIP is outlined. Mn/DOT annually evaluates the STIP on how well it achieves statewide goals and objectives and funding. Recommended actions are provided to each ATP for consideration in their next year's ATIP.

FLORIDA DOT

Integration of the Various Nepa and Environmental Laws into a Unified Process

FDOT has developed a Project Development and Environment Manual that describes the process by which transportation projects are developed by the Department to meet the requirements of various federal, state, and local laws and regulations. It provides direction in clarifying the process and to aid project analysts and managers in understanding the project development, engineering, public involvement, and environmental requirements. The manual is the accepted standard to conduct project development activities in Florida. Keeping the manual updated is a daily task under the guidance of a Review Committee and Environmental Management Office. Over 800 copies of the manual have been distributed to Department staff, consultants, other states, and has been translated for use in some other countries.

The manual comprises two volumes (*14,35*): Part 1 describes the overall project development process, including project notification, class of action determination, processes for various environmental documents, public involvement, project development, environmental permits, reevaluations, and corridor preservation; Part 2 is a "how to do it" on 32 specific topics, such as determining social and economic impacts; performing air quality analyses; assessing wild and scenic rivers, and coordinating with other agencies.

Each chapter of the manual is laid out in a similar format, which includes:

- Overview of requirements,

- Procedures to be followed,
- References to pertinent laws, regulations, and guidelines, and
- Figures that support the procedures, including examples of forms and documents.

Each format element is developed in detail so that the user fully understands the requirements, procedures, and sources for the subject. A copy of the table of contents for the chapter on wetlands is shown in Figure 10. One of the figures supplied for nearly all topics is a schematic flow chart of the process steps necessary to accomplish the Department's work for the Chapter's topic. A chart of the wetland evaluation process is shown in Figure 11.

FIGURE 10 Table of contents from Florida DOT's *Project Development and Enviromental Manual.*

The manual's focus on the environmental aspects of the project development process provides great assistance to personnel not accustomed to working with environmental requirements on a daily basis. The manual also provides standard approaches for handling processes and working with external agencies. The engineering aspects of the project development process are addressed primarily in the context of preliminary engineering, development of alternatives, and preparing project related studies, such as hydraulic and value engineering.

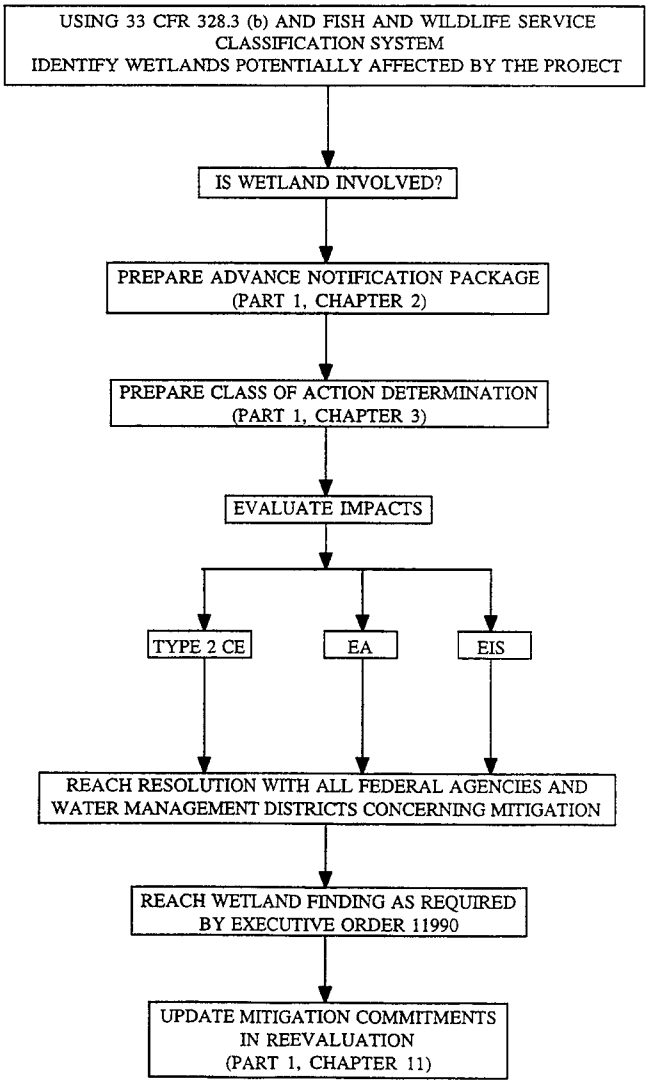

FIGURE 11 Wetland evaluation process flow chart from Florida DOT's *Project Development and Environmental Manual.*

ARIZONA DOT

Project Management

ADOT has established a system to manage all state highway projects. Stronger project management is seen by the Department as an answer to poor performance in terms of meeting project schedules and budgets and maintaining project scopes. Often, missing schedules and budgets led to public criticism for not delivering projects as programmed.

The specific project management approach used by ADOT was developed through the Department's quality program. A multifunctional team was established to

- Review the highway development process,
- Determine the problems associated with managing the process,

- Pursue the objectives of delivering a quality project on schedule within scope and budget,
- Collect information on the reasons for the problems, and
- Make recommendations for eliminating the problems.

The team's recommendations were to be implemented unless they contained fatal flaws. The team found the underlying problems to be:

- Rework and unnecessary work,
- Scope creep,
- Too much time to get a project developed and ready to bid, and
- Project development process is disconnected from customers.

Some of the reasons for these problems were determined to be:

- Lack of ownership for the project,
- Lack of scope consensus among project stakeholders,
- Scoping comes after the project is already in the STIP,
- Lack of clear definition of project intent and alternatives,
- Lack of timely project reviews, and
- Poor project communication.

The Department accepted and implemented the recommendations of the team for a strong project management system. Some of the key features are described below.

- All projects are managed.
- Project management is a life-cycle process, beginning with concept development and continuing through design, construction, and one year into maintenance (for feedback purposes).
- A project manager (PM) is assigned to every project to provide the focal point for project accountability and responsibility. The PM leads the project development process, assures good project communication, facilitates problem resolution and achieving project objectives.
- Projects are developed with a team focus. The project team operates on a matrix basis. Team members report to their technical managers for technical matters and to the PM for project related activities. Team project problem solving is required. Neither the PM nor project team is involved with technical issues unless the issues affect the project in a broader sense.
- The project manager has a limited authority to change scope, schedule, and budget. If the team cannot meet these limits, the issue is submitted to a senior management team for decision.
- Projects must be scoped, including determining budget and schedule requirements, before they are included in the 5-Year Construction Program and STIP.
- A project management organizational unit has been established to supply project managers and maintain the project development process. Project managers may come from other parts of the organization, particularly when a project has a predominate technical aspect, such as a bridge or landscaping project.
- Project managers need skills and knowledge in areas such as communication, team building, problem solving, and the project development process. Human skills are more important for good PMs than technical skills. As a result, only senior PMs, who are responsible for the most complex projects are required to be registered engineers.

ADOT has developed a Project Development Process Manual and a Project Managers' Handbook to assist PMs and project teams with the project development process. Project management training has been developed and provided to 350 ADOT and consultant personnel. The week-long training focuses on skills in communication, negotiation, and working with difficult personalities. It also introduces the project development process and roles within the process. An actual project development simulation exercise is performed by attendees and includes use of the department's on-line Primavera project scheduling and tracking system. Eighty-three percent of the attendees indicate that this is the best training that they ever had at ADOT.

The department has found that its project management approach has improved meeting scope and budget management objectives considerably and has somewhat improved meeting schedule goals. Most areas within the department accept the project management program as the best way to conduct the project development process. A few areas see it as an infringement on their authority.

CHAPTER SEVEN

CONCLUSIONS

This chapter presents the key findings of this study and identifies areas of research that may lead to improving and streamlining the transportation development process. These findings are based on the survey responses and on information gathered in the case studies, which show that transportation organizations are using innovative approaches to make the TDP work. Effective communication, information sharing, and the desire to work together underly the successes reported by survey respondents.

• *There is improved coordination and strengthening of state and regional planning, programming, and public participation processes.*

Based on survey responses, states appear to be taking the broader role of establishing statewide transportation direction and looking to their regional offices, MPOs, and other regional organizations to develop the specifics in concert with the public to implement the statewide direction. There is considerable communication between the state and regions through committees and meetings.

• *Project development activities are being advanced to the planning phase, but not always successfully.*

Transportation agencies are attempting to move aspects of project development forward—including public participation, stakeholder involvement and data collection—to identify reasonable alternatives, environmental constraints, project scope, schedule, and budget during the planning phase. The objectives are to reach early project consensus and streamline the development process. A significant problem being encountered in this effort is the unwillingness of some agencies, particularly resource agencies, to make commitments based on planning level data. One example of the problem is the tiered environmental impact statement. Most agencies that have used it have not found it useful because they have to redo the work later in the project.

Research could be performed to determine if it is feasible to identify what information is required, including the level of detail, to make good project decisions regarding alternatives, environmental constraints, scope, schedule, and budget.

Research could also be performed to summarize all federal laws and regulations in the form of checklists and/or flowcharts for the TDP so project sponsers could determine if they have met all of the requirements under federal law. FHWA has done some work in this regard with its environmental guidebook for NHI Course No. 14205 (*1*).

• *Methods, tools, and techniques for working with the TDP need to be shared.*

The research for this project has brought attention to many successful methods, tools, and techniques used by transportation agencies to successfully implement aspects of the TDP for their jurisdiction. Access to this type of information needs to be widely and conveniently available to personnel in all transportation agencies for use in improving their TDP. Typically, this kind of information transfer is accomplished through national meetings and conferences of various organizations. It may also be available through information systems such as TRIS and the FHWA Bulletin Board. The problem is that a select few get to attend national activities, and knowledge of information systems is probably limited. With computers now at most desks and the availability of tools such as e-mail and the internet, good communication and access to information are possible.

Research to develop an information system and training would help users at all levels in transportation agencies access information and personnel regarding good TDP practices. Similar research could ensure electronic linkages among federal and state agencies' home pages through the internet, so that information on TDP requirements, process approaches, and experiences can be readily accessible to the transportation community. The research could involve representatives of potential users, information specialists, US DOT, resource agencies, and AASHTO.

• *The TDP is very complex and states are having problems meeting its requirements.*

A multitude of federal transportation laws and regulations govern the TDP. ISTEA added several new federal transportation programs, each with its own set of regulations, and placed new emphasis on many aspects of the TDP, such as public participation, regional and statewide planning and programming, coordination of programs, transportation system management and flexibility. Additionally, states have their own transportation and environmental laws, which add to the complexity.

Transportation improvements affect many other public interest programs, particularly in the social, environmental, and economic areas. As a result, transportation decisions are also subject to the laws and regulations that govern these programs. Many are single purpose in nature, such as air quality, water quality, and historic preservation. Some agencies view FHWA and FTA as single-purpose entities within US DOT.

All states and MPOs responding to the questionnaire expressed some problems with existing federal laws and regulations.

The "AASHTO Survey on Mandates Impacting on Federal Surface Transportation Programs" (*4*) and the reports and recommendations of the AASHTO Reauthorization Steering Committee also support this conclusion.

This suggests that more research of Titles 23 and 49 of United States Code and associated regulations could be undertaken to identify those that can be eliminated or consolidated based on the premise that only laws and regulations essential to the national interest would be retained, and conflicting or redundant requirements would be eliminated. Fewer laws and regulations can lead to more flexible approaches to local conditions. Some agencies suggest that Title 23 and Title 49 TDP requirements could be consolidated under one title. The multi-agency regulatory streamlining effort underway as part of the amendments to the transportation conformity rule is an example of federal streamlining efforts that will assist in the TDP. Research could involve federal, state, and local government representatives as well as representation from advocacy groups.

- *The many environmental and related programs that impact the transportation decisionmaking process result in redundancy and inefficiency.*

Transportation organizations experience the TDP requirements of single-purpose programs as additive, and therefore find it necessary to deal with many single-purpose agencies under each agency's program requirements. Outside of US DOT requirements, federal land and environmental and human resource agencies have significant impacts on the TDP. Many of the requirements of these programs are similar and are seen as redundant or overlapping from the transportation perspective. On the other hand, these single-purpose agencies see transportation as a single-purpose program, and making special TDP laws and regulations to satisfy the transportation community may be difficult for them to administer.

Research could be undertaken to identify and integrate redundant requirements without compromising the agencies' objectives or creating undue administrative burdens. The research could also focus on ways to establish commitments from all participants to implement integrated processes. This research might best be done on a topical basis. The ongoing effort to integrate NEPA procedures with Section 404 CWA requirements is an example that has had some success. This research could be a joint federal agencies effort, with state and MPO participation. Prior to conducting the research, an executive level commitment to the research by impacted agencies should be required.

- *Stronger coordination and accountability for decisionmaking among federal agencies are needed.*

States and MPOs find themselves having to work through multiple decisionmakers. No one agency is accountable for many decisions, and the states are required to work through very complicated decisionmaking processes. Section 404 permitting, CAAA requirements, and CMAQ funding provide examples.

Research could identify opportunities to more efficiently coordinate and assign decisionmaking accountability. This might require the commitment of federal agencies to streamline decisionmaking processes and potentially provide authority for one agency to make final decisions on behalf of all the involved agencies. It could also take the form of federal initiatives to empower state and local decisionmaking efforts, such as the effort underway to implement transportation conformity interagency consultation processes. This research would probably best be handled on a topical basis.

- *Better participation by federal agencies in the transportation development process is needed.*

Some states are experiencing a lack of timely and continuing participation by some federal agencies in the TDP, often resulting in rework or delays. This problem is occurring even in cases where federal agencies are required by regulation or have committed through written agreements to a participation process. The problem is particularly evident with the federal resource and environmental agencies, as is often the case with signatory agencies to NEPA/Section 404 Permit process integration agreements. Research to identify the causes for failure of agencies to participate and to find ways to improve participation could be useful.

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LIST OF ACRONYMS

AASHTO	American Association of State Highway and Transportation Officials
ADA	Americans with Disabilities Act
ADD	Area Development Districts
ATIP	Area Transportation Improvement Program
ATP	Area Transportation Partnerships
CAA(A)	Clean Air Act (Amendments)
CE	Categorical Exclusion
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CMS	Congestion Management System
CFR	Code of Federal Regulations
COE	United States Army Corps of Engineers
CWA	Clean Water Act
DOT	Department of Transportation
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
GOP	Goal Oriented Program
ISTEA	Intermodal Surface Transportation Efficiency Act
MIS	Major Investment Study
MPO	Metropolitan Planning Organization
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHS	National Highway System
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
RCRA	Resource Conservation and Recovery Act
RDC	Regional Development Commission
RTC	Regional Transportation Committee
RTP	Regional Transportation Plan
SIP	State Implementation Plan (air quality)
STIP	State Transportation Improvement Plan
STP	Statewide Transportation Plan or Surface Transportation Program
TCM	Transportation Control Measure
TDP	Transportation Development Process
TIP	Transportation Improvement Program
TMA	Transportation Management Area (urbanized areas over 200,000 population)
USFWS	United States Fish and Wildlife Service

APPENDIX A

Survey

TRANSPORTATION DEVELOPMENT PROCESS (TDP)

NCHRP PROJECT 20-5, TOPIC 26-11

SYNTHESIS OF PRACTICE

The purpose of this survey is to obtain input about how your agency conducts the TDP and what problems and solutions you have discovered in carrying out the process. Because of the breadth of the TDP subject matter, please feel free to distribute copies of the survey to others in your agency who can provide valuable input.

For purposes of this synthesis, the TDP includes the sequence of activities starting with transportation problem definition, planning, programming and continuing through corridor and area studies, major investment studies (MIS), consideration of alternatives, environmental documentation, selection of the problem solution and design.

Please provide the following regarding your agency and contact person for this survey:

Agency Name: _____
Address: _____
Contact Person: _____
Title: _____
Telephone: _____ Fax: _____

1. Transportation Development Process (General)

The TDP has gone through significant changes in recent years to meet the requirements of ISTEA and many environmental laws and regulations, such as clean air and water, wetlands mitigation and historic preservation. Please answer the following questions in light of these changes.

a. Does your agency believe that present TDP requirements are reasonable?

Yes ❑ No ❑

b. Please provide specific reasons for your yes/no answer to a.

_____
_____
_____
_____
_____

c. What innovative procedures and approaches have your agency implemented to facilitate meeting TDP requirements?

_____
_____
_____

d. What changes in federal laws or regulations do you believe are essential to streamline the TDP?

e. Outside of changing federal laws or regulations, what do you think are the most important actions that should be taken to streamline the transpiration development process?

f. What competing or conflicting elements do you see in the TDP process?

2. Transportation Planning and Programming Processes

There are federal requirements for both regional and statewide transportation planning and programming and for these activities to be coordinated. Federally funded projects may not proceed unless they are in statewide plans, and for urbanized areas they must also be in MPO plans. The following quests relate to these planning requirements and how you have adjusted your TDP to accommodate them.

a. Has your state established a transportation planning and programming process?

Yes ❑ No ❑

1) If the answer to a is yes, is the process documented?

Yes ❑ No ❑

2) If the answer to a is no, how are you meeting the federal requirements for statewide planning and programming?

b. Does your state have a good process for integrating state and MPO planning and programming requirements?

Yes ❑ No ❑

1) Describe the process that you use to integrate state and MPO planning and programming requirements.

2) What institutional mechanisms has your state developed to assist in integrating state and MPO planning and programming requirements in your state?

3) Are the financial constraints requirements for planning and programming creating a problem in your state?

Yes ❑ No ❑

3. Advancement of TDP Activities

There has been considerable debate of the merits for advancing elements of the TDP to earlier points in the process. One argument is that getting decisions made early will result in saving time and resources later. An opposing argument is that resources will be wasted if detailed information is developed early in the TDP for projects that are not eventually implemented.

a. Does your agency believe that in recent years it has been important to advance elements of the TDP?

Yes ❑ No ❑

b. In the last 5 years, has your agency advanced or attempted to advance elements of the TDP toward the front end of the TDP?

Yes ❑ No ❑

1) Describe which elements.

_____
_____
_____

2) What are the reasons that you advanced or attempted to advance these elements?

_____
_____
_____

3) Which elements were you successful in advancing?

_____
_____
_____

4) If you were unsuccessful in attempts to advance some elements of the TDP, please explain why?

_____
_____
_____

5) Which elements that you advanced or attempted to advance involved moving the element from the project development phase to the planning phase?

_____
_____
_____

4. Integration of Elements of the TDP

Considerable attention has been placed on integrating elements within the TDP, such as Major Investment Study (MIS) and NEPA requirements, NEPA and planning requirements and fiscal constraint and programming requirements. There has also been considerable focus on integrating elements of the TDP with external processes, such as the Section 404 (Clean Water) and NEPA requirements and Clean Air and other programming requirements.

a. List the processes that your agency has integrated.

_____
_____
_____

1) List any of these integrated processes that are documented.

2) Do you have written agreements for the integrated processes with the agencies responsible to administer the requirements?

Yes ❑ No ❑ Some ❑

3) If you have not been totally successful in obtaining agreements, which agencies have been a problem?

4) Have the integrated processes worked?

Yes ❑ No ❑ Some processes ❑

5) What have been the ingredients for success?

6) What have been the causes of failure?

b. What processes have you unsuccessfully tried to integrate?

1) What have been the reasons for lack of success?

c. What processes do you believe that the federal government has the responsibility to integrate?

5. Coordination with Other Agencies and Special Interest Groups during the TDP Process

An important factor in the success of the TDP is coordination with a multitude of public agencies and private interest groups. These organizations include those whose focus is on transportation as well as those whose focus is on other areas such as social, economic and environmental issues.

a. Do you consider your agency successful in coordinating its TDP with affected governmental agencies and interest groups?

Yes ❑ No ❑

1) What do you consider to be the essential elements of a successful approach for a coordinated TDP?

2) List other agencies that you believe have a successful coordination process for their TDP.

b. In the last 5 years has your agency attempted to involve other governmental agencies and interest groups impacting the TDP earlier in the process?

Yes ❑ No ❑

If your answer is "No", go to Question 5c.

1) What have been your agency's objectives for involving other agencies and groups earlier?

2) Has the earlier involvement resulted in achieving your agency objectives?

Yes ❑ No ❑ In some cases ❑

3) Why have your objectives not been achieved in some cases?

4) What (if any) incentives were necessary to encourage early involvement of agencies and interest groups?

5) What agencies and interest groups have your agency unsuccessfully attempted to involve earlier?

6) Why do you feel that you were not successful in obtaining early involvement?

c. Has your agency had any problems with other agencies or interest groups making commitments during the TDP and changing their commitments later in the TDP?

Yes ❑ No ❑

1) Which agencies have been a problem for you in changing their commitments?

2) What do you believe are the principal reasons that they have changed their commitments?

d. Do you believe that there is a need to educate resource agencies and special interest groups on the transportation development process?

Yes ❑ No ❑

e. Do you believe that there has been sufficient inter-administration coordination of the TDP within USDOT?

Yes ❑ No ❑

1) If you answer is "No", in what areas does there need to be better coordination?

_____

_____

_____

6. Environmental Impact Analysis in the TDP

A major expenditure of time and resources in the TDP is associated with required environmental analysis. This is the result of the NEPA requirements as well as a host of special environmental laws including air quality, water quality, wetlands, cultural resources, hazardous waste, biological resources and noise.

a. List the criteria that your agency uses for determining what kind of NEPA document (CE, EA or EIS) that you are going to prepare for a project.

_____

_____

_____

_____

1) Are these criteria accepted by all affected agencies with which your agency works?

Yes ❑ No ❑

b. What NEPA activities do your agency perform during the planning phase of the TDP?

_____

_____

c. What has been your agency's experience in using the tiered EIS process?

_____

_____

_____

1) If your agency has not used the tiered EIS process, why not?

_____

_____

d. What successes has your agency had for incorporating other environmental requirements into the NEPA process?

_____

_____

_____

7. Tools and Techniques

a. List successful analytical, communication, coordination, integration or other techniques and tools that your agency uses to streamline the transportation development process.

TDP Activity	*Technique or Tool Description*

b. List any expert systems that your agency has in place or under development that could help streamline the TDP.

_____

_____

_____

c. What research do you believe needs to be conducted to help streamline the TD??

____

____

____

8. Case Studies

The Transportation Research Board would like to do a limited number of case studies on the TDP as part of this synthesis.

a. Would your agency be willing to be a case study for this synthesis?

Yes ❑ No ❑

b. What aspect(s) of the TDP would be most suitable for a case study of your agency?

____

____

____

* *

Thank you for participating in this very important survey!

Please mail the completed survey by *November 17, 1995* to:

Robert P. Mickelson
1821 W. Seldon Way
Phoenix, Arizona 85021

If you have any questions, please call Bob Mickelson (Topic 26-11 Consultant) at 602–994–9471.